

**CORDLESS IMPACT DRIVER  
WH 14DSL  
CORDLESS IMPACT WRENCH  
WR 14DSL**

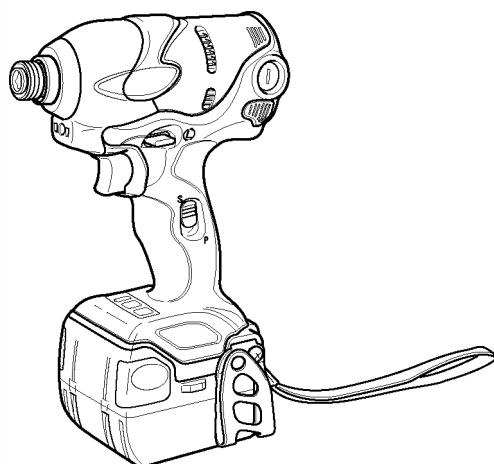
**MODELS**

**WH 14DSL**

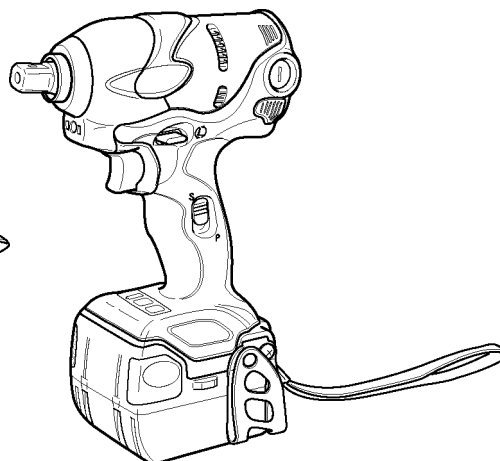
**WR 14DSL**

**Hitachi**  
**Power Tools**

**TECHNICAL DATA  
AND  
SERVICE MANUAL**



WH 14DSL



WR 14DSL

LIST Nos. WH 14DSL: G894  
WR 14DSL: G895

Feb. 2008

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

**W**

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

WH 14DSL

Symbols Utilized	Competitors	
	Company Name	Model Name
P	MAKITA	BTD130F

WR 14DSL

Symbols Utilized	Competitors	
	Company Name	Model Name
None	–	–

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## **1. PRODUCT NAME**

Hitachi Cordless Impact Driver, Model WH 14DSL

Hitachi Cordless Impact Wrench, Model WR 14DSL

## **2. MARKETING OBJECTIVE**

The new Models WH 14DSL and WR 14DSL are the compact-type cordless impact driver/wrench developed to reinforce our 14.4-V product lines and also to meet the market demands. These new models have powerful tightening torque thanks to the optimized impact timing, hook and protector (standard accessories). In addition, each of these new models is equipped with a slide-type lithium-ion battery to materialize the compact body, built-in LED light, and convenient remaining battery indicator. Thus the Models WH 14DSL and WR 14DSL are excellent in performance, user-friendliness and operability.

## **3. APPLICATIONS**

- Tightening/loosening of small screws, tapping screws, wood screws, bolts, nuts, etc.
- Drilling into wood and various other materials (with use of optional accessory drill chuck adapter).

### **[Applicable Markets]**

- Wood-product assembly: Tightening/loosening of wood screws
- Construction industry: Assembly of scaffolding, roofing, aluminum sashes, fencing, etc.; removal of plastic cones from concrete forms, mounting/removal of form ties; drilling into the wood frames of concrete forms, etc.
- Manufacturing industry: Assembly work for automobiles, rolling stock, shipbuilding, agricultural machinery and tools, industrial machines, steel furniture, etc.
- Utility industry: Assembly and installation of electric equipment, plumbing facilities, air conditioning (duct assembly etc.), sanitary fixtures and various other facilities.
- Service industry: General repair work; installation of advertising aids, automobile repair, assembly of garages, carports and storage sheds, etc.
- Various other assembly, construction or repair facilities

## **4. STANDARD EQUIPMENT**

Models WH 14DSL/WR 14DSL

- (1) 2LSCK specification: Two BSL 1430 batteries (Li-ion, capacity 3.0 Ah), battery cover, UC 18YRSL charger and case
- (2) NN specification: Only the main body

## 5. SELLING POINTS

Powerful tightening torque

Equipped with lightweight and high-capacity (3.0 Ah) lithium-ion battery

Switchable impact rate between save mode and power mode

### Model WH 14DSL

Tightening torque 145 N·m  
(1,480 kgf·cm)

Compact body: 145 mm in overall length

- Convenient for continuous operation in narrow places

Tool tip is structured without screws. The protector is a standard accessory.

Built-in white LED light

Switch and monitor panel

- Remaining battery indicator lamp
- Remaining battery indicator switch
- Light switch

Switchable impact rate between save mode and power mode

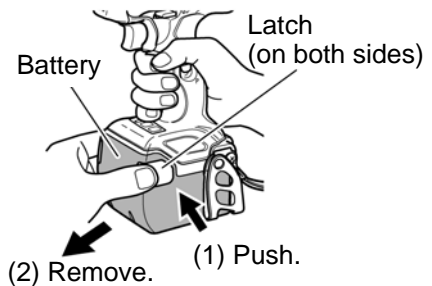
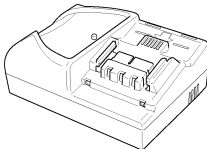
- Suitable for tightening machine screws

Easy-to-grip thin handle

New type of hook

Charger specifically designed for slide type lithium-ion batteries

Model UC 18YRSL

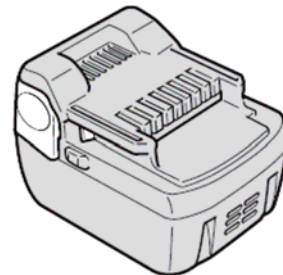


### Slide type lithium-ion battery

Type BSL 1430 (Capacity: 3.0 Ah)

The Type BSL 1430 lithium-ion battery is equipped with the overdischarge protection circuit, overcurrent protection circuit and voltage monitoring circuit for each cell for longer service life and safety.

- The Model WH 14DSL is equipped with the overdischarge and overcurrent protection circuit to prevent overdischarge (overuse) of the battery.
- The Type BSL 1430 lithium-ion battery is equipped with the voltage monitoring circuit for each cell to prevent overcharge of the battery.



## Model WR 14DSL

Tightening torque 165 N·m  
(1,685 kgf·cm)

Compact body: 152 mm in overall length

- Convenient for continuous operation in narrow places

Tool tip is structured without screws. The protector is a standard accessory.

Built-in white LED light

Switch and monitor panel

- Remaining battery indicator lamp
- Remaining battery indicator switch
- Light switch

Switchable impact rate between save mode and power mode

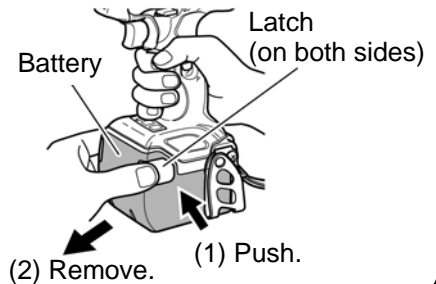
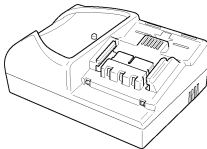
- Suitable for tightening small-diameter bolts

Easy-to-grip thin handle

New type of hook

Charger specifically designed for slide type lithium-ion batteries

Model UC 18YRSL

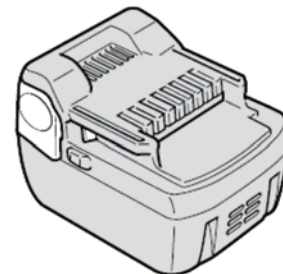


### Slide type lithium-ion battery

Type BSL 1430 (Capacity: 3.0 Ah)

The Type BSL 1430 lithium-ion battery is equipped with the overdischarge protection circuit, overcurrent protection circuit and voltage monitoring circuit for each cell for longer service life and safety.

- The Model WR 14DSL is equipped with the overdischarge and overcurrent protection circuit to prevent overdischarge (overuse) of the battery.
- The Type BSL 1430 lithium-ion battery is equipped with the voltage monitoring circuit for each cell to prevent overcharge of the battery.



## 5-1. Selling Point Descriptions

Selling points of the Models WH 14DSL and WR 14DSL:

(1) Equipped with the lightweight and high-capacity (3.0 Ah) lithium-ion battery

- Thanks to the adoption of the lithium-ion batteries, the Models WH 14DSL and WR 14DSL are substantially lighter than the current models equipped with Ni-MH batteries.

		BSL 1430	EB 1430H
Voltage	(V)	14.4	14.4
Capacity	(Ah)	3.0	3.0
Weight	(g)	520	910

The Type BSL 1430 lithium-ion battery is equipped with the overdischarge protection circuit, overload protection circuit, and voltage monitoring circuit for each cell to prevent shortening of the battery life due to overdischarge (overuse) or overcharge (excessive charging) of the battery.

The number of charging/discharging is about 1,500.

### Precautions for use of the Type BSL 1430 lithium-ion battery

The Type BSL 1430 lithium-ion battery is equipped with a protective function that automatically stops output to extend the battery life. The motor may stop automatically in either of the following case (a) or (b) even if the switch is depressed continuously during operation. This is because the protective function is activated. The battery is not faulty.

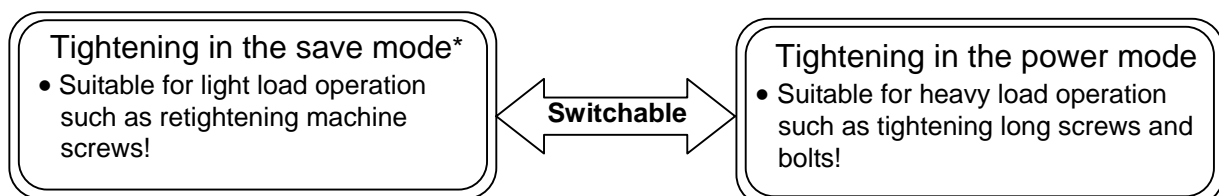
(a) The motor automatically stops when the remaining battery level is low (when the battery voltage is decreased to about 8 V (Type BSL 1430)). Charge the battery immediately in such case.

(b) The motor may stop if the Model WH 14DSL/WR 14DSL is overloaded. In such case, release the switch and eliminate the cause of the overload problem. Then the Model WH 14DSL/WR 14DSL will be operable.

Please instruct the customers on the above precautions.

(2) Switchable impact rate between save mode and power mode

The impact rate is switchable between two modes (save mode and power mode) according to applications. Put the Model WH 14DSL/WR 14DSL into the save mode for tightening machine screws into soft materials or put into the power mode for tightening long screws into hard materials. These models are very convenient because the impact rate can be adjusted according to the working conditions.






\* Precautions for use in the save mode

If the Model WH 14DSL/WR 14DSL is operated continuously in the save mode, the temperature of the electronic circuit modules in the switch may rise and it may result in burnout.

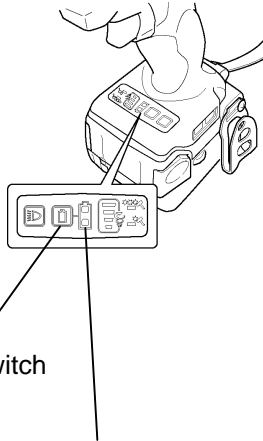
### (3) Remaining battery indicator

Each of the Models WH 14DSL and WR 14DSL is equipped with the remaining battery indicator. The battery remaining power can be checked just by pressing the remaining battery indicator switch.

State of lamp	Battery remaining power
	The battery remaining power is enough (about 60% or higher).
	The battery remaining power is a half.
	The battery remaining power is nearly empty (about 30% or lower). Recharge the battery immediately.

Remaining battery indicator switch

Remaining battery indicator lamp

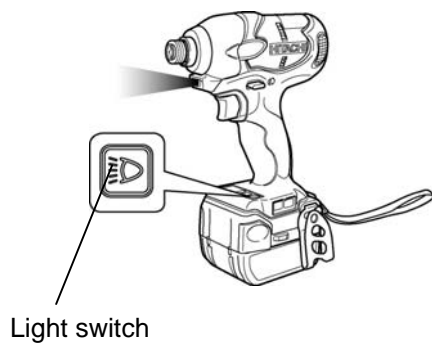


#### NOTE:

- The remaining battery indicator lamp lights only after the battery has been installed in the tool and the trigger switch has been pulled once.
- The indicator lamps of the high/low selector switch and the single/continuous selector switch go off immediately even though the trigger switch is pulled when the battery remaining power is nearly empty and the protection function is activated. It is not faulty.

### (4) Built-in white LED light

Each of the Models WH 14DSL and WR 14DSL incorporates the white LED light. It is very convenient for operation in dark places.



#### NOTE:

- To prevent the battery power consumption caused by forgetting to turn off the LED light, the light goes off automatically in about 15 minutes.
- The white LED light is lighted by pressing the light switch only after the battery has been installed in the tool and the trigger switch has been pulled once.



Selling points of the Model WH 14DSL

- High tightening speed and powerful torque: 145 N.m (1480 kgf.cm, 1280 in-lbs.)

(1) Tightening time comparison

Figure 1 shows the time required for tightening a wood screw (5.3 mm dia. x 120 mm length) into a lauan workpiece.

- WH 14DSL: 7 % higher than P

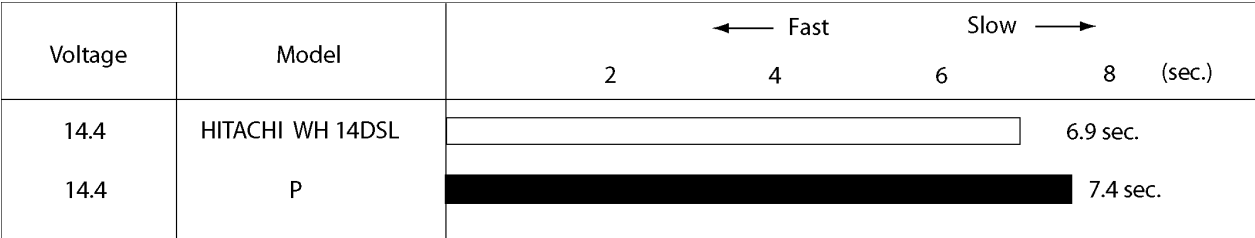


Fig. 1 Tightening time comparison

\* Tightening time may vary depending on hardness of the workpiece, ambient temperature, characteristics of the battery, etc.

(2) Tightening torque comparison

Figure 2 shows the torque required for tightening an M14 high-strength tension bolt in 3 seconds with a hexagon socket (40 mm long).

- WH 14DSL: 8 % higher than P

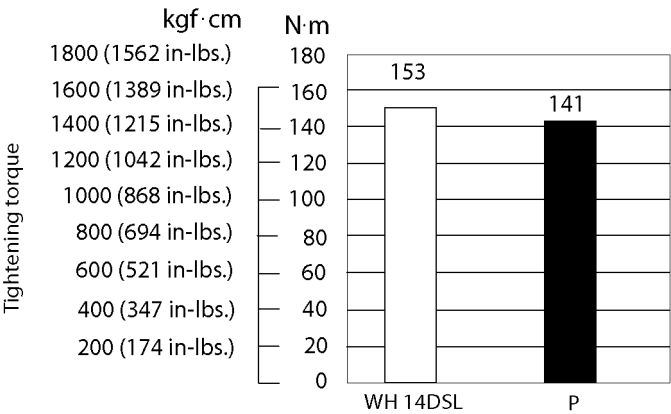


Fig. 2 Tightening torque comparison

Selling points of the Model WR 14DSL

- Powerful tightening torque: 165 N•m (1680 kgf•cm, 1460 in-lbs.)

(1) Tightening torque

Figure 3 shows the torque required for tightening an M16 F10T bolt in 3 seconds with a hexagon socket (40 mm long).

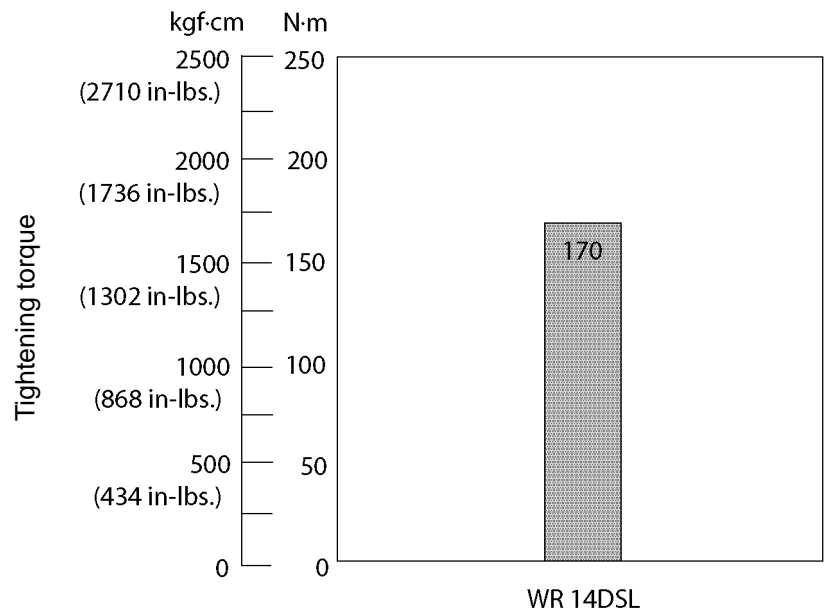


Fig. 3

\* The data above are intended for reference purposes only because actual tightening torque will vary depending on tightening conditions.

## 6. SPECIFICATIONS

### 6-1. Specifications

Models WH 14DSL/WR 14DSL

Model		Cordless impact driver WH 14DSL	Cordless impact wrench WR 14DSL
Item			
Capacity		Small screw M4 to M8 (5/32" to 5/16")* <sup>1</sup> Ordinary bolt M5 to M14 (3/16" to 9/16") High-strength bolt M5 to M12 (3/16" to 15/32")	Ordinary bolt M6 to M16 (1/4" to 5/8") High-strength bolt M6 to M12 (1/4" to 15/32")
Tightening torque	Power mode	145 N•m (1480 kgf•cm, 1280 in-lbs.)* <sup>2</sup>	165 N•m (1680 kgf•cm, 1460 in-lbs.)* <sup>3</sup>
	Save mode	80 N•m (815 kgf•cm, 710 in-lbs.)* <sup>2</sup>	90 N•m (920 kgf•cm, 800 in-lbs.)* <sup>3</sup>
Tip condition		6.35 mm (1/4") bit holder	12.7 mm (1/2") square drive
Type of motor		Fan cooled rare-earth magnet motor	
Enclosure		Main body: Polyamide resin + elastomer ----- Housing Aluminum alloy die casting ----- Hammer case Elastomer ----- Protector Storage battery: Polycarbonate resin (black) Charger: ABS resin (black)	
Type of switch		Trigger switch with forward/reverse changeover pushing button (with brake)	
Handle configuration		T-type	
No-load rotational speed		0 to 2,600/min (Power mode) / 0 to 2,000/min (Save mode)	
Impact rate		0 to 3,200/min (Power mode) / 0 to 2,400/min (Save mode)	
Weight	Main body	1.4 kg (3.1 lbs.) (Includes battery)* <sup>4</sup>	1.5 kg (3.3 lbs.) (Includes battery)* <sup>4</sup>
	Battery	0.5 kg (1.1 lbs.)	
Overall length x height		145 mm (5-45/64") x 235 mm (9-1/4")	152 mm (5-63/64") x 235 mm (9-1/4")
Center height		29 mm (1-9/64")	
Battery (Type BSL 1430)		Sealed cylindrical Li-ion battery Nominal voltage: DC 14.4 V Nominal life: Charging/discharging approximately 1,500 cycles (in the case of the Model UC 18YRSL) Nominal capacity: 3.0 Ah	
Charger (Model UC 18YRSL)		Overcharge protection system: (1) Battery voltage detection (-ΔV system) Battery temperature detection (dT/dt system) (2) Battery surface temperature detection (thermostat or thermistor) (3) 120-minute timer (4) Stop current detection Power input: 90 W Charging time: Approx. 45 minutes [for Type BSL 1430 battery at 20°C (68°F)] Operable ambient temperature range: 0°C to 40°C (32°F to 104°F) The maximum allowable temperature of the Type BSL 1430 battery is 50°C (122°F). Indication method of battery charging function	

Indications of the pilot lamp			
The pilot lamp lights or blinks in red.	Before charging	Blinks Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds) ■■■■■	
	While charging	Lights Lights continuously ■■■■■	
	Charging complete	Blinks Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds) ■■■■■	
	Charging impossible	Flickers Lights for 0.1 seconds. Does not light for 0.1 seconds. (off for 0.1 seconds) ■■■■■	Malfunction in the battery or the charger
The pilot lamp lights in green.	Charging impossible	Lights Lights continuously ■■■■■	The battery temperature is high, making recharging impossible.

\*<sup>1</sup>: M3 (1/8") tapping screws and wood screws are the smallest screws that can be tightened.

\*<sup>2</sup>: This torque is based on tightening an M12 (9/16") bolt (strength grade: 12.9) for 3 seconds with a hexagon socket.

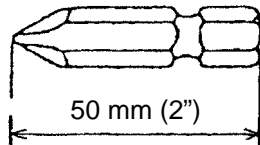
\*<sup>3</sup>: This torque is based on tightening an M16 (5/8") bolt (F10T) for 3 seconds with a hexagon socket.

\*<sup>4</sup>: Main body does not include accessory tools and hook (hexagonal bit etc.).

## 6-2. Optional Accessories

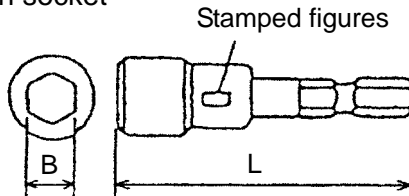
(1) Optional accessories for the Model WH 14DSL

- Plus driver bit



Bit No.	Code No.
No. 2	992671
No. 3	992672

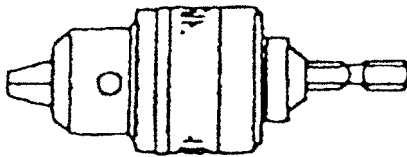
- Hexagon socket



Part name	Stamped figure	L (mm)	B (mm)	Code No.
5 mm hexagon socket	8	65 (2-9/16")	8 (5/16")	996177
6 mm hexagon socket	10	65 (2-9/16")	10 (3/8")	985329
5/16" hexagon socket	12	65 (2-9/16")	12 (15/32")	996178
8 mm hexagon socket	13	65 (2-9/16")	13 (1/2")	996179
10 mm hexagon socket (small type)	14	65 (2-9/16")	14 (9/16")	996180
10 mm hexagon socket	16	65 (2-9/16")	16 (5/8")	996181
10 mm hexagon socket	17	65 (2-9/16")	17 (21/32")	996182
1/2" hexagon long socket	21	166 (6-17/32")	21 (53/64")	996197

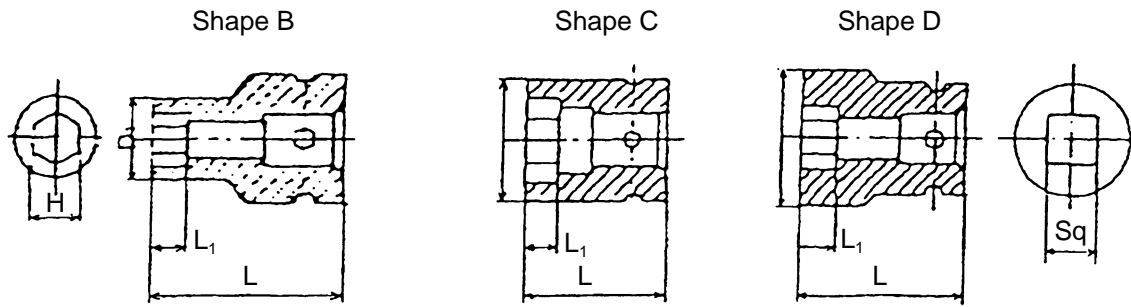
- Drill chuck adaptor set (Code No. 321823)

The drill chuck adaptor set permits mounting of various types of locally-available drill bits for a variety of drilling operations.



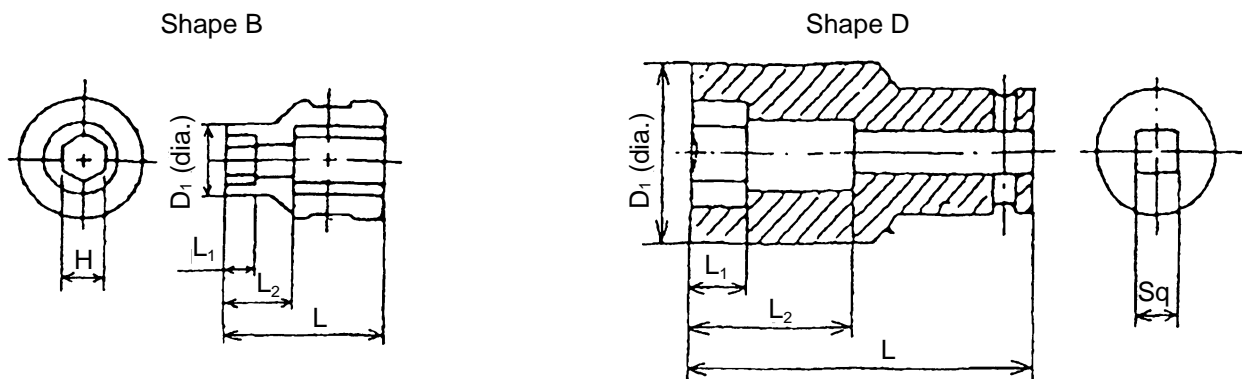
(2) Optional accessories for the Model WR 14DSL

• Dimensions and applicable bolts for each hexagon socket



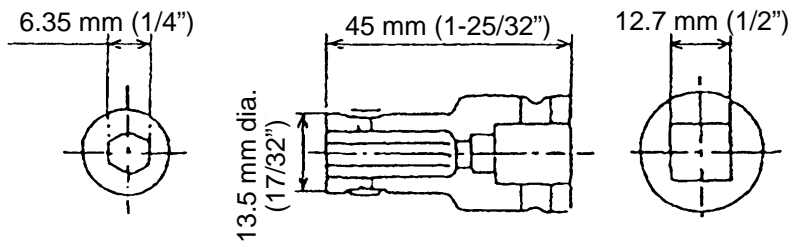
Square drive dimension Sq	Part name	Code No.	Nominal diameter of applicable bolts				Dihedral width H (mm)	Shape	Socket primary dimensions (mm)		
			ISO (High-strength)	ISO (Ordinary)	ISO (Small type)	Inch screw			L	L <sub>1</sub>	D <sub>1</sub>
12.7 mm (1/2")	Hexagon socket	10 mm 944291	—	M 6 (1/4")	—	—	10 (3/8")	B	40 (1-9/16")	8 (5/16")	18 (23/32")
		12 mm 873632	—	—	M 8 (5/16")	W 5/16"	12 (15/32")	B	40 (1-9/16")	8 (5/16")	20 (25/32")
		13 mm 873539	—	M 8 (5/16")	—	—	13 (1/2")	B	40 (1-9/16")	9 (11/32")	25 (1")
		14 mm 873540	—	—	M 10 (3/8")	—	14 (9/16")	B	40 (1-9/16")	9 (11/32")	25 (1")
		17 mm 873536	—	M 10 (3/8")	M 12 (15/32")	W 3/8"	17 (21/32")	C	32 (1-1/4")	8 (5/16")	28 (1-3/32")
		19 mm 873624	—	M 12 (15/32")	M 14 (9/16")	W 7/16"	19 (23/32")	C	34 (1-11/32")	9 (11/32")	28 (1-3/32")
		21 mm 873626	—	—	—	W 1/2"	21 (53/64")	D	36 (1-13/32")	10 (3/8")	32 (1-1/4")
		22 mm 873627	M 12 (15/32")	M 14 (9/16")	M 16 (5/8")	—	22 (7/8")	D	40 (1-9/16")	14 (9/16")	35 (1-3/8")
		24 mm 873629		M 16 (5/8")	M 18 (23/32")		24 (15/16")	D	40 (1-9/16")	15 (9/16")	38 (1-1/2")
		26 mm 873630				W 5/8"	26 (1")	D	40 (1-9/16")	15 (9/16")	38 (1-1/2")
		27 mm 985195	M 16 (5/8")	M 18 (23/32")	M 20		27 (1-1/16")	D	40 (1-9/16")	16 (5/8")	42 (1-21/32")

• Dimensions and applicable bolts for each long socket



Square drive dimension Sq	Part name	Code No.	Nominal diameter of applicable bolts				Dihedral width H (mm)	Shape	Socket primary dimensions (mm)			
			ISO (High-strength)	ISO (Ordinary)	ISO (Small type)	Inch screw			L	L <sub>1</sub>	L <sub>2</sub>	D <sub>1</sub>
12.7 mm (1/2")	Long socket	12 mm 955138	—	—	M 8 (5/16")	W 5/16"	12 (15/32")	B	52 (2-3/64")	20 (25/32")	34 (1-11/32")	20 (25/32")
		13 mm 955139	—	M 8 (5/16")	—	—	13 (1/2")	B	52 (2-3/64")	20 (25/32")	34 (1-11/32")	21.5 (53/64")
		14 mm 955140	—	—	M 10 (3/8")	—	14 (9/16")	B	52 (2-3/64")	20 (25/32")	34 (1-11/32")	22 (7/8")
		17 mm 955141	—	M 10 (3/8")	M 12 (15/32")	W 3/8"	17 (21/32")	B	52 (2-3/64")	24 (15/16")	34 (1-11/32")	25 (1")
		17 mm 955149	—	M 10 (3/8")	M 12 (15/32")	W 3/8"	17 (21/32")	B	75 (2-15/16")	24 (15/16")	57 (2-1/4")	25 (1")
		19 mm 955142	—	M 12 (15/32")	M 14 (9/16")	W 7/16"	19 (23/32")	B	52 (2-3/64")	24 (15/16")	34 (1-11/32")	28 (1-3/32")
		19 mm 955150	—	M 12 (15/32")	M 14 (9/16")	W 7/16"	19 (23/32")	B	75 (2-15/16")	24 (15/16")	57 (2-1/4")	28 (1-3/32")
		21 mm 955143	—	—	—	W 1/2"	21 (53/64")	D	52 (2-3/64")	24 (15/16")	34 (1-11/32")	31 (1-7/32")
		21 mm 955151	—	—	—	W 1/2"	21 (53/64")	D	75 (2-15/16")	24 (15/16")	57 (2-1/4")	31 (1-7/32")
		21 mm 991480	—	—	—	W 1/2"	21 (53/64")	D	125 (4-47/51")	24 (15/16")	107 (4-7/32")	31 (1-7/32")
		22 mm 955144	M 12 (15/32")	M 14 (9/16")	M 16 (5/8")	—	22 (7/8")	D	52 (2-3/64")	24 (15/16")	34 (1-11/32")	32.5 (1-9/32")
		24 mm 955146	—	M 16 (5/8")	M 18 (23/32")	—	24 (15/16")	D	52 (2-3/64")	25 (63/64")	34 (1-11/32")	34 (1-11/32")
		26 mm 955147	—	—	—	W 5/8"	26 (1")	D	75 (2-15/16")	25 (63/64")	57 (2-1/4")	38 (1-1/2")

• Bit adaptor (Code No. 991476)



Part name	Overall length (mm)	Code No.
Plus hd. driver bit No. 2	45 (1-25/32")	983005
	65 (2-9/16")	983006
Plus hd. driver bit No. 3	45 (1-25/32")	983010
	65 (2-9/16")	983011

- Extension bar [Overall length 100 mm (3-15/16") ] (Code No. 873633)
- Universal joint (Code No. 992610)
- Socket ass'y for duct
- EW-14R corner attachment

Dihedral width of applicable bolts	Code No.
12 (15/32")	993658
13 (1/2")	992613
14 (9/16")	992615

## 7. COMPARISONS WITH SIMILAR PRODUCTS

### 7-1. Specification Comparisons (Cordless impact driver)

				Maker	HITACHI		P	
Item				Model	WH 14DSL	WH 14DL		
Catalog specifications	Capacity	Small screw			M 4 to M 8 (5/32" to 5/16") * <sup>1</sup>		M 4 to M 10 (5/32" to 3/8") * <sup>1</sup>	M 4 to M 8 (5/32" to 5/16")
		Ordinary bolt			M 5 to M 14 (3/16" to 9/16")		M 6 to M 14 (1/4" to 9/16")	M 5 to M 14 (3/16" to 9/16")
		High-strength bolt			M 5 to M 12 (3/16" to 15/32")		M 6 to M 12 (1/4" to 15/32")	M 5 to M 12 (3/16" to 15/32")
	Max. tightening torque <sup>*2</sup>	Power mode	N•m	145 (1,480 kgf•cm, 1,280 in-lbs.)		140 (1,430 kgf•cm, 1,240 in-lbs.)	140 (1,430 kgf•cm, 1,240 in-lbs.)	
		Save mode		80 (815 kgf•cm, 710 in-lbs.)		75 (765 kgf•cm, 670 in-lbs.)	-	
	No-load rotational speed	Power mode	min <sup>-1</sup>	0 to 2,600		0 to 2,600	0 to 2,400	
		Save mode		0 to 2,000		0 to 2,000	-	
	Impact rate	Power mode	min <sup>-1</sup>	0 to 3,200		0 to 3,200	0 to 3,200	
		Save mode		0 to 2,400		0 to 2,400	-	
	Main body weight <sup>*3</sup>			kg	1.4 (3.1 lbs.)		1.5 (3.3 lbs.)	1.4 (3.1 lbs.)
Measured figures	Max. tightening torque <sup>*2</sup>	Power mode	N•m	153 (1,560 kgf•cm, 1,355 in-lbs.)		150 (1,530 kgf•cm, 1,330 in-lbs.)	141 (1,440 kgf•cm, 1,250 in-lbs.)	
	No-load rotational speed	Power mode	min <sup>-1</sup>	0 to 2,580		0 to 2,610	0 to 2,420	
		Save mode		0 to 1,960		0 to 2,040	-	
	Impact rate	Power mode	min <sup>-1</sup>	0 to 2,790		0 to 3,190	0 to 3,160	
		Save mode		0 to 2,210		0 to 2,490	-	
	Overall length x height			mm	145 x 235 (5-45/64" x 9-1/4")		162 x 236 (6-3/8" x 9-19/64")	146 x 235 (5-3/4" x 9-1/4")
	Center height			mm	29 (1-9/64")		27 (1-1/16")	29 (1-9/64")
	Main body weight * <sup>3</sup>			kg	1.49 (3.3 lbs.)		1.58 (3.5 lbs.)	1.45 (3.2 lbs.)
No-load sound pressure level			dB(A)	70		72	73	
Remaining battery indicator				Provided		Not provided	Not provided	
LED light				Provided		Provided	Provided	
Type of switch				Variable speed switch with forward/reverse changeover lever		Variable speed switch with forward/reverse changeover lever	Variable speed switch with forward/reverse changeover lever	
Type of motor				DC magnet		DC magnet	DC magnet	
Voltage			V	14.4		14.4	14.4	
Battery	Type			BSL 1430		BCL 1430	BL1430	
	Nominal capacity		Ah	3.0		3.0	3.0	
	Nominal voltage		V	14.4		14.4	14.4	
	Ambient temperature		°C	0 to 40		0 to 40	-	
Charger	Model			UC 18YRSL		UC 18YRL	DC 18SC	
	Nominal input capacity		VA	90		95	-	
	Recharging voltage		V	7.2 to 18		7.2 to 18	7.2 to 18	
Standard accessories				• Plastic tool case • Charger (UC 18YRSL) • Rechargeable battery • Battery cover		• Plastic tool case • Charger (UC 18YRL) • Rechargeable battery	• Plastic tool case • Charger (DC 18SC) • Rechargeable battery	

\*1: M3 (1/8") tapping screws and wood screws are the smallest screws that can be tightened.

\*2: Max. tightening torque is based on tightening an M14 (9/16") bolt (strength grade: 12.9) for 3 seconds with a hexagon socket.

\*3: Main body weight does not include accessory tools and hook (hexagon bit etc.).

## 7-2. Specification Comparisons (Cordless impact wrench)

				Maker	HITACHI	
Item				Model	WR 14DSL	WR 14DL
Catalog specifications	Capacity	Ordinary bolt			M 6 to M 16 (1/4" to 5/8")	M 10 to M 16 (3/8" to 5/8")
		High-strength bolt			M 6 to M 12 (1/4" to 15/32")	M 8 to M 14 (5/16" to 9/16")
	Max. tightening torque <sup>*1</sup>	Power mode	N•m	165 (1,680 kgf•cm, 1,460 in-lbs.)	200 (2,040 kgf•cm, 1,770 in-lbs.)	
		Save mode		90 (920 kgf•cm, 800 in-lbs.)	110 (1,120 kgf•cm, 980 in-lbs.)	
	No-load rotational speed	Power mode	min <sup>-1</sup>	0 to 2,600	0 to 2,600	
		Save mode		0 to 2,000	0 to 2,000	
	Impact rate	Power mode	min <sup>-1</sup>	0 to 3,200	0 to 3,200	
		Save mode		0 to 2,400	0 to 2,400	
	Main body weight <sup>*2</sup>			kg	1.5 (3.3 lbs.)	1.5 (3.3 lbs.)
Measured figures	Max. tightening torque <sup>*1</sup>	Power mode	N•m	170 (1,735 kgf•cm, 1,505 in-lbs.)	232 (2,370 kgf•cm, 2,055 in-lbs.)	
	No-load rotational speed	Power mode	min <sup>-1</sup>	0 to 2,580	0 to 2,610	
		Save mode		0 to 1,960	0 to 2,040	
	Impact rate	Power mode	min <sup>-1</sup>	0 to 2,790	0 to 3,190	
		Save mode		0 to 2,210	0 to 2,490	
	Overall length x height			mm	152 x 235 (5-63/64" x 9-1/4")	167 x 236 (6-37/64" x 9-19/64")
	Center height			mm	29 (1-9/64")	27 (1-1/16")
	Main body weight <sup>*2</sup>			kg	1.52 (3.4 lbs.)	1.59 (3.5 lbs.)
No-load sound pressure level			dB(A)	70	72	
Remaining battery indicator				Provided	Not provided	
LED light				Provided	Provided	
Type of switch				Variable speed switch with forward/reverse changeover lever	Variable speed switch with forward/reverse changeover lever	
Type of motor				DC magnet	DC magnet	
Voltage			V	14.4	14.4	
Battery	Type			BSL 1430	BCL 1430	
	Nominal capacity		Ah	3.0	3.0	
	Nominal voltage		V	14.4	14.4	
	Ambient temperature		°C	0 to 40	0 to 40	
Charger	Model			UC 18YRSL	UC 18YRL	
	Nominal input capacity		VA	90	95	
	Recharging voltage		V	7.2 to 18	7.2 to 18	
Standard accessories				• Plastic tool case • Charger (UC 18YRSL) • Rechargeable battery • Battery cover	• Plastic tool case • Charger (UC 18YRL) • Rechargeable battery	

\*1: Max. tightening torque is based on tightening an M16 (5/8") bolt (F10T) for 3 seconds with a hexagon socket.

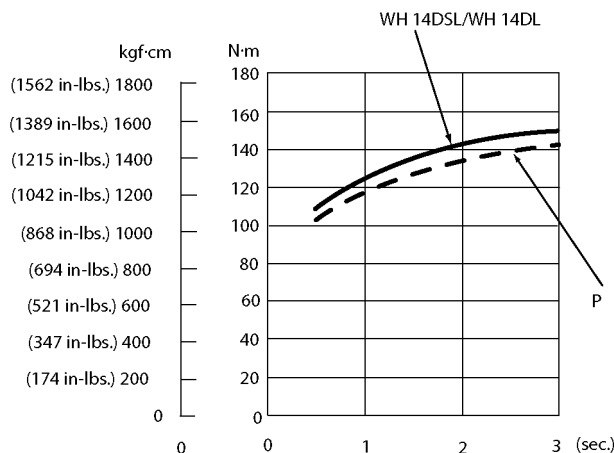
\*2: Main body weight does not include accessory tools and hook (hexagon bit etc.).



7-3. Tightening Torque

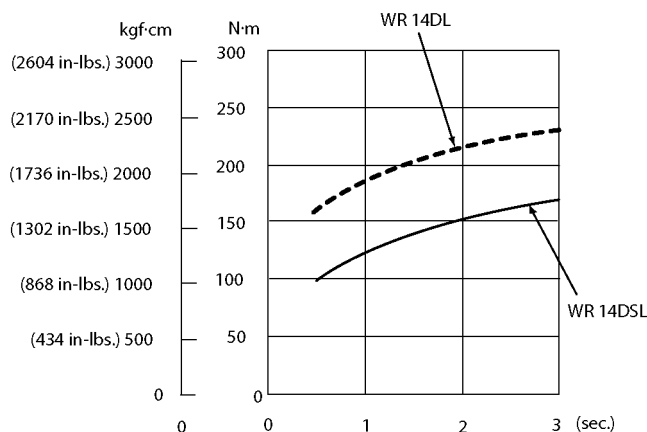
7-3-1. Tightening torque characteristic comparisons

(1) Impact driver (14.4 V)



Test conditions  
Bolt: M14 x 50 mm, high-strength bolt  
Steel plate: SS34P  
Thickness 25 mm  
Accessory tool: Hexagon socket  
(length: 40 mm,  
width across flat: 19 mm)

(2) Impact wrench (14.4 V)



Test conditions  
Bolt: M16 x 55 mm (5/8" x 2-5/32") (F10T)  
Steel plate: Mild steel  
Thickness 25 mm  
Accessory tool: Hexagon socket ass'y

### 7-3-2. Screw diameter and appropriate tightening torque

Generally speaking, the appropriate tightening torque for a screw can be determined by the strength grade of the screw and the material tightened. Tables 1 and 2, and Fig. 4 below list data relative to the strength grade of various screws and the appropriate tightening torque. For further reference, appropriate tightening torque is calculated with the following formula. Study and use this formula for accurate selection of tightening torque.

$$T = k \cdot d \cdot p$$

T: Appropriate tightening torque (kgf·cm)

d: Nominal diameter of thread (mm)

p: Recommended axial tightening force to be applied to the screw (kgf)

$$p = \text{rated axial stress (kgf/mm}^2\text{)} \times 0.8 \times \text{Effective sectional area of thread (mm}^2\text{)}$$

k: Torque coefficient (0.17)

- Strength grade and rated axial stress of thread

**Table 1**

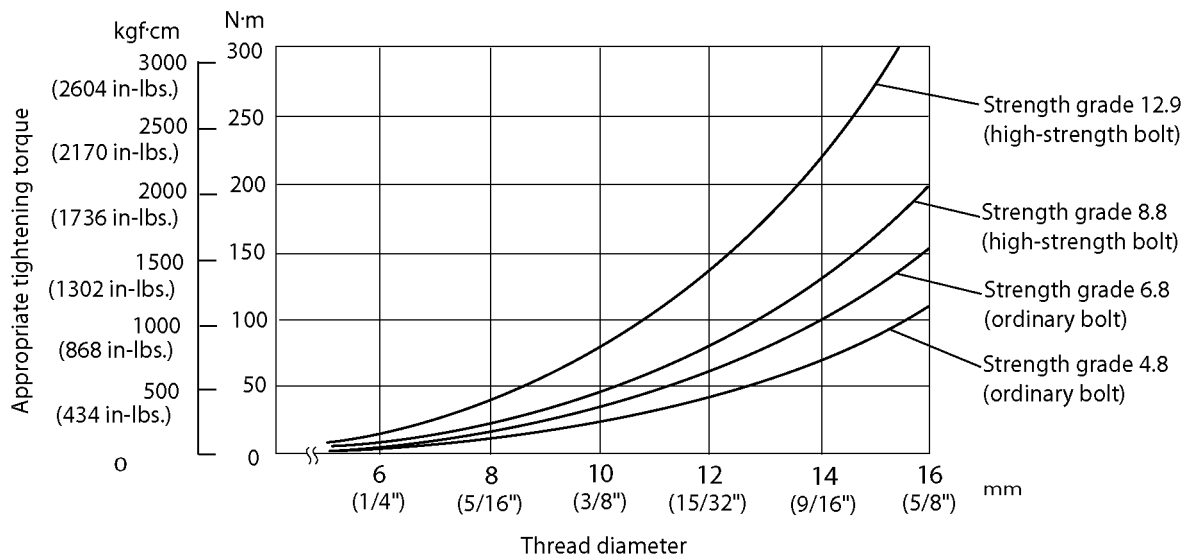
Strength grade	4.8	6.8	8.8	12.9
Rated axial stress (kgf/mm <sup>2</sup> )	29.1	43.7	58.2	95
Material	Mild steel		Alloy steel including Ni, Mn, Cr, etc.	
Heat treatment	Not processed		Processed: Hard material	

- Diameter and effective sectional area of thread

**Table 2**

Kind of thread x pitch	M5 x 0.8 mm (3/16")	M6 x 1 mm (1/4")	M8 x 1.25 mm (5/16")	M10 x 1.5 mm (3/8")	M12 x 1.75 mm (15/32")	M14 x 2 mm (9/16")	M16 x 2 mm (5/8")
Effective sectional area of thread (mm <sup>2</sup> )	14.2	20.1	36.6	58.0	84.3	115	157

- Thread diameter and appropriate tightening torque



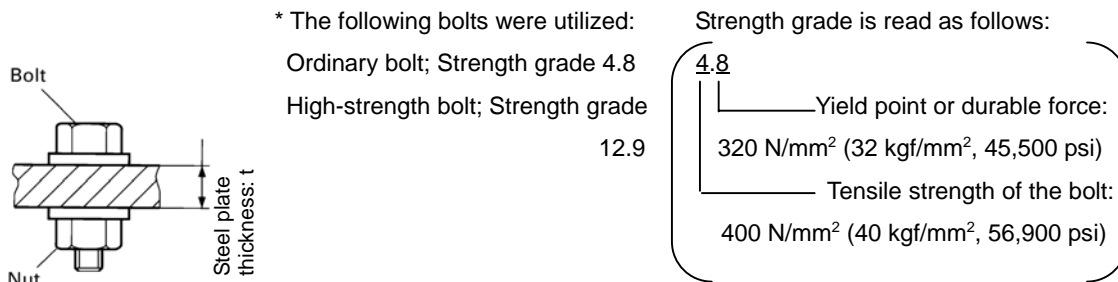
**Fig. 4**

### 7-3-3. Bolt tightening torque characteristics

Figures 5-1 and 5-2 show relationships between time and tightening torque for individual bolt types and sizes. While the data are useful for handy reference, actual tightening torque will vary depending on tightening conditions and other variables. For details, please refer to Para. 8-3 "Tightening Torque Variation."

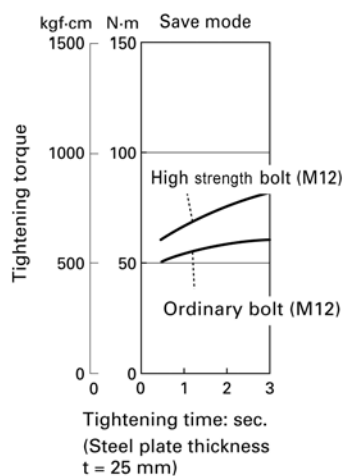
#### NOTE:

- The term "tightening time" indicates the impact time after the lower surface of the bolt has come in contact with the material into which it is being tightened.
- In the tightening conditions shown in Figs. 5-1 and 5-2, the screws are being tightened directly into a steel plate; accordingly, the torque goes up very abruptly in comparison with ordinary bolt tightening conditions.



#### • Model WH 14DSL

○ Tightening in the save mode



○ Tightening in the power mode

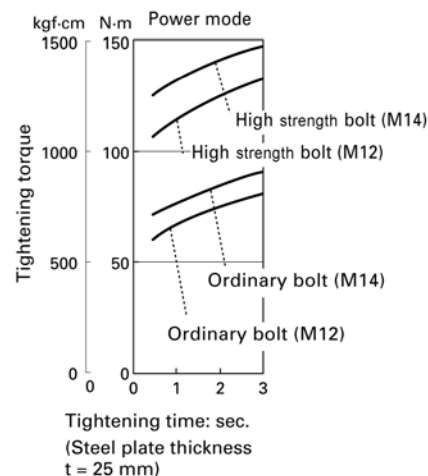
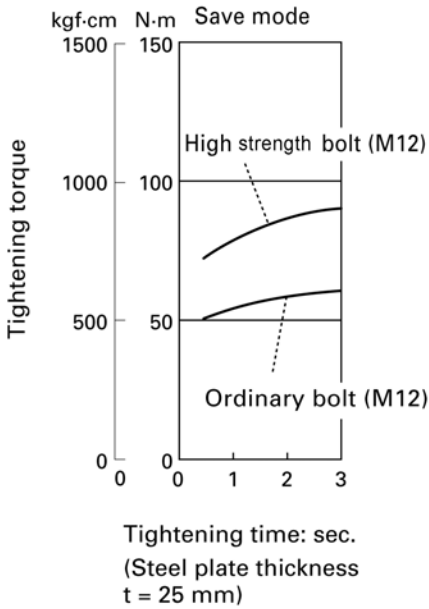


Fig. 5-1

• Model WR 14DSL

○ Tightening in the save mode



○ Tightening in the power mode

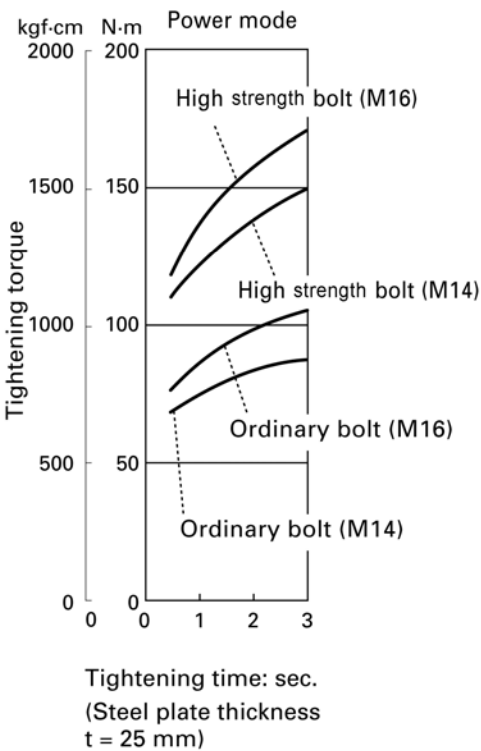


Fig. 5-2

#### 7-4. Tightening Time

The performance of the Model WH 14DSL is superior to the competitors thanks to the large hammer and the optimized impact timing. Tightening time comparison is shown below. The data below are intended for reference purposes only because actual tightening time will vary depending on hardness of the workpiece, ambient temperature, characteristics of the battery, etc.

##### 1) Wood screw 5.3 mm dia. x 120 mm length, lauan

Voltage	Model	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>← Fast</span> <span>Slow →</span> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <span>2</span> <span>4</span> <span>6</span> <span>8</span> <span>10 sec.</span> </div>				
14.4	HITACHI WH 14DSL	<div style="display: flex; align-items: center;"> <div style="width: 69%; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, #ccc 2px, #ccc 4px);"></div> <span>6.9 sec.</span> </div>				
14.4	HITACHI WH 14DL	<div style="display: flex; align-items: center;"> <div style="width: 71%; height: 10px; background: white; border: 1px solid black;"></div> <span>7.1 sec.</span> </div>				
14.4	P	<div style="display: flex; align-items: center;"> <div style="width: 74%; height: 10px; background: black;"></div> <span>7.4 sec.</span> </div>				

##### 2) Wood screw 4.5 mm dia. x 90 mm length, hemlock spruce

Voltage	Model	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>← Fast</span> <span>Slow →</span> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5 sec.</span> </div>				
14.4	HITACHI WH 14DSL	<div style="display: flex; align-items: center;"> <div style="width: 30%; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, #ccc 2px, #ccc 4px);"></div> <span>3.0 sec.</span> </div>				
14.4	HITACHI WH 14DL	<div style="display: flex; align-items: center;"> <div style="width: 32%; height: 10px; background: white; border: 1px solid black;"></div> <span>3.2 sec.</span> </div>				
14.4	P	<div style="display: flex; align-items: center;"> <div style="width: 33%; height: 10px; background: black;"></div> <span>3.3 sec.</span> </div>				

##### 3) Wood screw 4.5 mm dia. x 75 mm length, hemlock spruce

Voltage	Model	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>← Fast</span> <span>Slow →</span> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5 sec.</span> </div>				
14.4	HITACHI WH 14DSL	<div style="display: flex; align-items: center;"> <div style="width: 17%; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, #ccc 2px, #ccc 4px);"></div> <span>1.7 sec.</span> </div>				
14.4	HITACHI WH 14DL	<div style="display: flex; align-items: center;"> <div style="width: 17%; height: 10px; background: white; border: 1px solid black;"></div> <span>1.7 sec.</span> </div>				
14.4	P	<div style="display: flex; align-items: center;"> <div style="width: 17%; height: 10px; background: black;"></div> <span>1.7 sec.</span> </div>				

## 7-5. Number of Screws or Bolts Driven

### 7-5-1. Per-charge working capacity comparisons

Test data on the number of screws or bolts which can be driven per battery charge by the new models vs. the previous models are shown in the table below. Please note that the data below are intended for general reference only as the number of screws which can be tightened per charge will vary slightly depending on screw tightening conditions, screw sizes, ambient temperatures and the charging capacity of the battery.

Number of screws or bolts driven (Cordless impact driver)

Model Tightening condition	HITACHI WH 14DSL	HITACHI WH 14DL	P
Battery	BSL 1430 (Nominal capacity: 3.0 Ah)	BCL 1430 (Nominal capacity: 3.0 Ah)	BL 1430 (Nominal capacity: 3.0 Ah)
Wood screw 4.0 mm dia. x 50 mm (soft wood)	800	950	1,000
Wood screw 4.2 mm dia. x 90 mm (hard wood)	195	155	160
Wood screw 5.3 mm dia. x 120 mm (hard wood)	60	60	55
Machine screw (M8 x 16 mm)	1,650	1,900	2,000

Number of bolts driven (Cordless impact wrench)

Model Tightening condition	HITACHI WR 14DSL	HITACHI WR 14DL
Battery	BSL 1430 (Nominal capacity: 3.0 Ah)	BCL 1430 (Nominal capacity: 3.0 Ah)
Bolt M16 x 55 mm (F10T)	126	126

## **8. PRECAUTIONS IN SALES PROMOTION**

### **8-1. Safety Instructions**

In the interest of promoting the safest and most efficient use of the Models WH 14DSL and WR 14DSL by all our customers, it is very important that at the time of sale the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Caution Plate and Name Plate attached to each tool.

#### **A. Handling Instructions**

Salespersons must be thoroughly familiar with the contents of the Handling Instructions in order to give pertinent advice to the customer. In particular, they must have a thorough understanding of the precautions in the use of the cordless (battery charger type) electric power tools which are different from those of ordinary electric power tools.

- (1) Before use, ensure that the unit is fully charged.

New units are not fully charged. Even if the units were fully charged at the factory, long periods without use, such as during shipping, cause the storage battery to lose its charge.

Customers must be instructed to fully charge the unit prior to use.

- (2) When charging storage batteries, use only the exclusive Model UC 18YRSL charger provided with the tool. Because of the designed rapid-charging feature, use of other battery chargers is hazardous.

- (3) Follow prescribed steps in using the charger.

First connect the storage battery to the charger, then plug the charger into an AC outlet (ensuring that the voltage matches that indicated on the unit). If this order is reversed, the charger may not function properly.

- (4) Ensure the power source voltage is the same as that indicated on the Name Plate of the charger. Use of any other power source (DC outlet, fuel powered generator, etc.) will cause the charger to overheat and burn out.

- (5) Do not use any voltage increasing equipment (transformer etc.) between the power source and the charger.

If the charger is used with voltage over and above that indicated on the unit, it will not function properly.

- (6) Conduct battery charging at an ambient temperature range of 0 °C to 40 °C (32 °F to 104 °F).

Special temperature sensitive devices are employed in the charger to permit rapid charging.

Ensure that customers are instructed to use the charger at the indicated ambient temperature range. At temperatures under 0 °C (32 °F), the thermostat will not function properly, and the storage battery may be over-charged.

At temperatures over 40 °C (104 °F), the storage battery cannot be sufficiently charged. The optimum temperature range is 20 °C to 25 °C (68 °F to 77 °F).

- (7) The battery charger should not be used continuously.

At high ambient temperatures, if over three storage batteries are charged in succession, the temperature of the coils on the transformer will rise and there is a chance that the temperature fuse inserted in the interior of the transformer will inadvertently melt. After charging one battery, please charge the next battery after about a fifteen-minute interval.

- (8) The charger case is equipped with air vents to protect the internal electronic components from overheating. Caution the customer not to allow foreign materials, such as metallic or flammable objects, to be dropped or inserted into the air vents. This could cause electric shock, fire or other serious hazards.

- (9) Do not attempt to disassemble the storage battery or the charger.

Special devices, such as a thermostat, are built into the storage battery and the charger to permit rapid charging. Incorrect parts replacement and/or wiring will cause malfunctions which could result in fire or other hazards. Instruct the customer to bring these units to an authorized service center in the event repair or replacement is necessary.

(10) Disposal of the storage batteries

Ensure that all customers understand that the storage batteries should be returned to the Hitachi power tool sales outlet or authorized service center when they are no longer capable of being recharged or repaired. If thrown into a fire, the batteries may explode.

(11) Effect of permanent magnet

Each of the Models WH 14DSL and WR 14DSL has a strong permanent magnet in its motor. Please instruct the customers about adhesion of dust to the Models WH 14DSL and WR 14DSL and effect on electronic devices as follows.

- Do not place the Model WH 14DSL/WR 14DSL on a workbench or work area where metal dust is scattered about.
- Do not touch the dust-adhered Model WH 14DSL/WR 14DSL. Instruct the customers to remove adhered dust with a brush.
- Users of medical electronics such as a pacemaker must not use or get close to the Model WH 14DSL/WR 14DSL.
- Do not bring precision equipment such as a mobile-phone or electronic recording media such as a magnetic card close to the Model WH 14DSL/WR 14DSL.

(12) Keep the battery out of dust.

- Protect the battery from being covered with dust during operation.
- Protect the battery from being covered with dust accumulated on the Model WH 14DSL/WR 14DSL during operation.
- Do not leave the battery in a dusty area when not in use.
- Remove dust from the battery and store it separating from metallic parts such as screws and nails.



## B. Caution Plates

(1) The following cautions are listed on the name plate attached to the main body of each tool.

For the U.S.A. and Canada

### **WARNING**

- To reduce the risk of injury, user must read and understand Instruction Manual.

### **AVERTISSEMENT**

- Afin de réduire le risque de blessures, l'utilisateur doit lire et bien comprendre le mode d'emploi.

(2) The following cautions are listed on the name plate attached to each storage battery.

### **CAUTION**

- Read thoroughly HANDLING INSTRUCTIONS before use.
- Do not disassemble nor throw into fire.

(3) The following cautions are listed on the name plate attached to the Model UC 18YRSL charger.

For the U.S.A. and Canada

### **CAUTION**

- For safe operation, see Instruction Manual.
- Charge HITACHI rechargeable batteries Types BSL 14 and BSL 18 series. Other types of batteries may burst causing personal injury and damage.
- Charge between 32 °F and 104 °F. Rest 15 minutes between the charging of batteries.
- Indoor use only.
- Replace defective cord immediately.

## 8-2. Tightening Torque Inspection Prior to Operation

As described and shown in Para.7-3-3, the output tightening torque of which the Models WH 14DSL and WR 14DSL are capable in excess of the rated tightening torque of certain bolts and screws. Accordingly, if the tightening time is prolonged for such bolts and screws, it could cause damage to their threads or, in the worst case, cause them to be sheared off. (This phenomenon is common to all existing impact drivers.) Particularly when tightening M6 (1/4") or smaller screws, tightening time must be kept extremely short: 0.5 second or less. The customer should be advised to carry out several screw tightening operations and adjust the tightening time as necessary by measuring the tightening torque with an appropriate torque wrench or driver before commencing continuous operation.

## 8-3. Tightening Torque Variation

The tightening torque of the cordless impact driver or wrench may vary slightly in accordance with the factors described below. Salespersons are requested to advise the customer to confirm that appropriate tightening torque is obtained by measuring the torque with an appropriate torque wrench or torque driver at the beginning of the tightening operations, and as necessary during the tightening operations. In addition, the torque values shown in Para. 7-3-2 above are useful as a handy reference, and may be utilized as tentative standards.

### (1) Voltage of battery

Tightening torque is affected by the voltage output of the battery. Tightening torque decreases as the number of bolts tightened increases. This phenomenon is caused by the decline in voltage output of the battery due to the increasing number of bolts tightened. In particular, the tightening torque decreases rapidly just before the overdischarge protection circuit is activated. As this phenomenon is an inherent drawback in any cordless impact driver/wrench, salespersons are requested to ensure that the customer is fully aware of and understands this characteristic.

#### | | |--| | Precautions for use of the lithium-ion battery | |--|

The lithium-ion battery is equipped with a protective function that automatically stops output to extend the battery life. The motor may stop automatically even though the switch is depressed continuously when the remaining battery level is low (about 8 V or lower). This is because the protective function is activated. The battery is not faulty. Charge the battery immediately in such case.

### (2) Effects of low ambient temperatures

The tightening torque required may be reduced at low ambient temperatures or under the influence of grease and different torque coefficients (depending on manufacturing and finishing processes specified by bolt manufacturers).

### (3) Different bolt diameter

Differences in bolt diameter will cause variation of the required levels of tightening torque. Generally speaking, tightening torque is higher for large bolts.

(4) Different materials being tightened

When a bolt is tightened into a soft material such as aluminum, plastic, wood, etc., the tightening torque is considerably less than when the bolt is tightened into a hard material such as steel.

(5) Different tightening conditions

The tightening torque may vary in accordance with bolt torque coefficient (depending on manufacturing process specified by bolt manufacturers), bolt grade and bolt length, even though the dimensions of the bolts are the same. Tightening torque may also vary depending on the surface finishing state of tightening materials (steel, aluminum, etc.), and materials to be tightened. In addition, if there is seal packing, clearance, etc. between tightening materials, the tightening torque is decreased.

(6) Wear and looseness of the socket

With extended use, the hexagonal portion of the socket which is fitted to the head of the bolt or drill bit, and/or hexagonal portion of the driver chuck which is fitted onto the anvil in the main body will become worn and loose. Wear and looseness will cause a proportionate loss of tightening torque. In addition, use of an incorrect size socket (slightly larger than the bolt being tightened) will also result in decreased torque.

(7) Bolt and nut rotate together

Tightening torque that can be achieved will be considerably decreased if the bolt and the nut rotate together during the tightening operation. The customer should be advised to carefully observe the operation and ensure this does not occur.

#### **8-4. Suggestions and Precautions for the Efficient Use of the Charger**

(1) Batteries may not be rechargeable immediately after use

If the storage batteries are exposed to direct sunshine for an extended period, or if the temperature of the batteries is 40 °C (104 °F) or higher immediately after they have been used in the tool, the pilot lamp may not light up when the batteries are connected to the Model UC 18YRSL charger. This is because the built-in thermostat functions to stop the charging when the temperature of the storage batteries reach 40 °C (104 °F) or more. In such a case, the customer should be advised to place the batteries in a shaded area with a good airflow, and allow sufficient cooling before recharging.

This phenomenon is common to all existing batteries which employ temperature sensitive overcharge devices. The cooling time required before charging can be accomplished varies from a few minutes to about 30 minutes, depending on the load, duration of use, and ambient temperature.

## **9. OTHER PRECAUTIONS**

### **(1) Check for cracks or other damage on the socket**

Cracks or any other faults on the socket are very hazardous. In addition, cracks or other damage to accessories will cause loss of tightening torque efficiency. Advise the customer to inspect accessories often, and ensure there are no abnormalities.

### **(2) Socket dimensions**

Without fail, utilize an appropriate socket which matches the bolt and/or nut dimensions. If the socket dimensions are larger than the bolts or nuts, it will not only cause insufficient tightening torque, but could also easily cause damage to the socket. Please refer to the tables in Para. 6-2 for appropriate socket dimensions.

### **(3) Hammering section lubrication**

Grease (Molub-Alloy 777-1) is utilized in the hammering section. Frequent or continuous use of the tool will cause excessive temperature rise of the hammering section, resulting in depletion of the grease and subsequent increased wear of components which will, in turn, cause loss of tightening efficiency. Accordingly, it is necessary to periodically replenish the grease in the hammering section to ensure proper lubrication of moving and sliding components.

## 10. REPAIR GUIDE

**WARNING:** Without fail, remove the battery from the main body before starting repair or maintenance work. Because the tool is cordless, if the battery is left in and the switch is activated inadvertently, the motor will start rotating unexpectedly, which could cause serious injury.

### 10-1. Precautions in Disassembly and Reassembly

The **[ ]** and **< >** numbers correspond to the item numbers in the Parts List and the exploded assembly diagram. (**[ ]**: WH 14DSL, **< >**: WR 14DSL)

#### 10-1-1. Disassembly

##### (1) Removal of Guide Sleeve (D) **[4]** (Model WH 14DSL only)

Remove the Retaining Ring **[1]**, Washer (D) **[2]**, Guide Spring (D) **[3]** and Guide Sleeve (D) **[4]** in order by following the procedure shown in Figs. 6-1 to 6-4. Be sure not to lose the two Steel Balls D3.5 **[8]** in Anvil (D) **[9]**.

<p>1</p> <p><b>Fig. 6-1</b></p> <p>Hold the body and adjust the gap of the retaining ring to the groove of anvil (D), then insert a small flat-blade screwdriver into the groove at an angle.</p>	<p>2</p> <p><b>Fig. 6-2</b></p> <p>Press down washer (D) with the small flat-blade screwdriver.</p>
<p>3</p> <p><b>Fig. 6-3</b></p> <p>Slide the small flat-blade screwdriver under one side of the gap of the retaining ring.</p>	<p>4</p> <p><b>Fig. 6-4</b></p> <p>Slowly raise the retaining ring using the end face of guide sleeve (D) as a fulcrum.</p>

Then slowly raise the other side of the retainer ring with the small flat-blade screwdriver until it is free. Avoid quickly raising the retainer ring or it may fly out forcefully.

(2) Removal of Front Cap (F) [5] <1> and Protector (J) [6] <2>

Insert a small flat-blade screwdriver between Front Cap (F) [5] <1> and Protector (J) [6] <2> and remove them from the Hammer Case [7] <3>.

(3) Removal of Hook (A) [41] <38>

Remove the M4 Truss Hd. Screw (Black) [42] <38> and Hook (A) [41] <38>. By removing Hook (A) [41] <38>, disassembly can be done easily.

(4) Removal of the Carbon Brushes 5 x 6 x 11.5 [32] <29>

Remove the two Brush Caps [33] <30>. Catch the flanges of the Carbon Brushes 5 x 6 x 11.5 [32] <29> with a small flat-blade screwdriver and remove the Carbon Brushes 5 x 6 x 11.5 [32] <29> at both sides.

(5) Removal of housing (B)

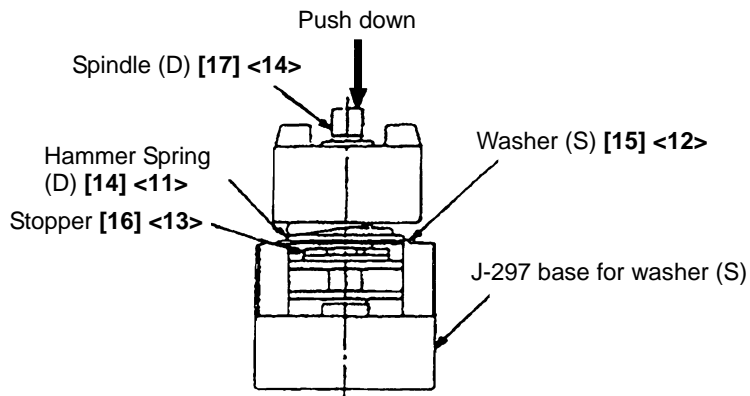
Remove the nine Tapping Screws (W/Flange) D4 x 20 (Black) [34] <31> from the main body. The Strap (Black) [49] <45> can be removed by removing the Tapping Screw (W/Flange) D4 x 20 (Black) [34] <31>. Before removing housing (B), be sure to remove the Brush Caps [33] <30> because housing (B) cannot be removed if the Brush Caps [33] <30> are mounted.

(6) Removal of the switch

The FET of the DC-Speed Control Switch [45] <42> is firmly inserted in the housing. Insert a small flat-blade screwdriver between the FET and housing (B) to raise and remove the FET. Then, Hammer Case [7] <3>, hammer assembly, Inner Cover (D) [25] <22>, Armature Ass'y DC 14.4V [26] <23>, Magnet (D) [28] <25>, Brush Block [31] <28>, DC-Speed Control Switch [45] <42>, Controller [46] <43>, terminal support and LED light can be removed in a piece. Pushing Button (A) [38] <35> can also be removed.

**NOTE: Be careful not to break the three legs coming from the FET to avoid malfunction of the switch.**

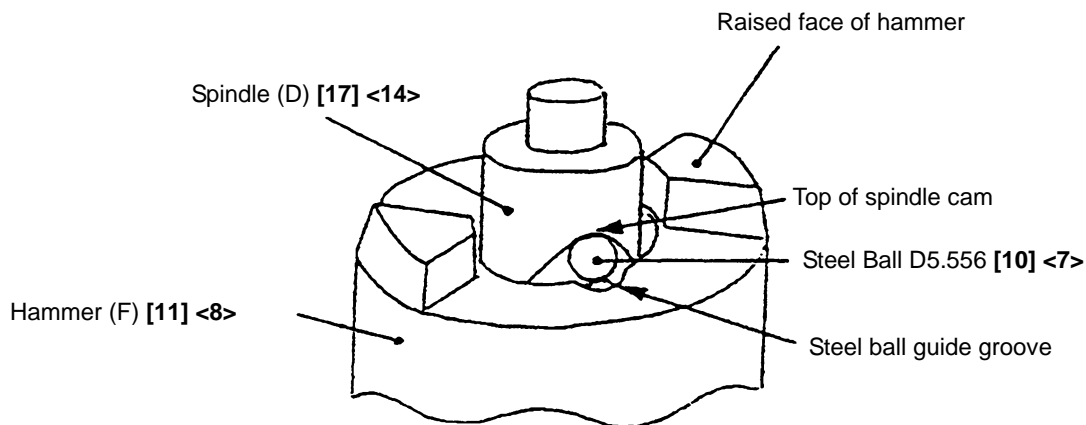
(7) Disassembly of the hammer assembly



**Fig. 7**

Mount the hammer assembly onto the J-297 base for washer (S). With a hand press, push down the top of Spindle (D) [17] <14> to compress Hammer Spring (D) [14] <11>. In this position, remove Stopper [16] <13> with a small flat-blade screwdriver, then release the hand press. (See Fig. 7.)

Remove the hammer assembly from the J-297 base for washer (S) and support the end surface of Spindle (D) [17] <14>. With a hand press, push down either of the raised faces of Hammer (F) [11] <8> to compress Hammer Spring (D) [14] <11>. In this position, extract the two Steel Balls D5.556 [10] <7> from the cam grooves of Spindle (D) [17] <14> and Hammer (F) [11] <8> with a small flat-blade screwdriver. Then, slowly release the hand press and lift the Hammer (F) [11] <8> and Washer (S) [15] <12> together to extract them from Spindle (D) [17] <14>. Hammer Spring (D) [14] <11> can then be removed.



**Fig. 8**

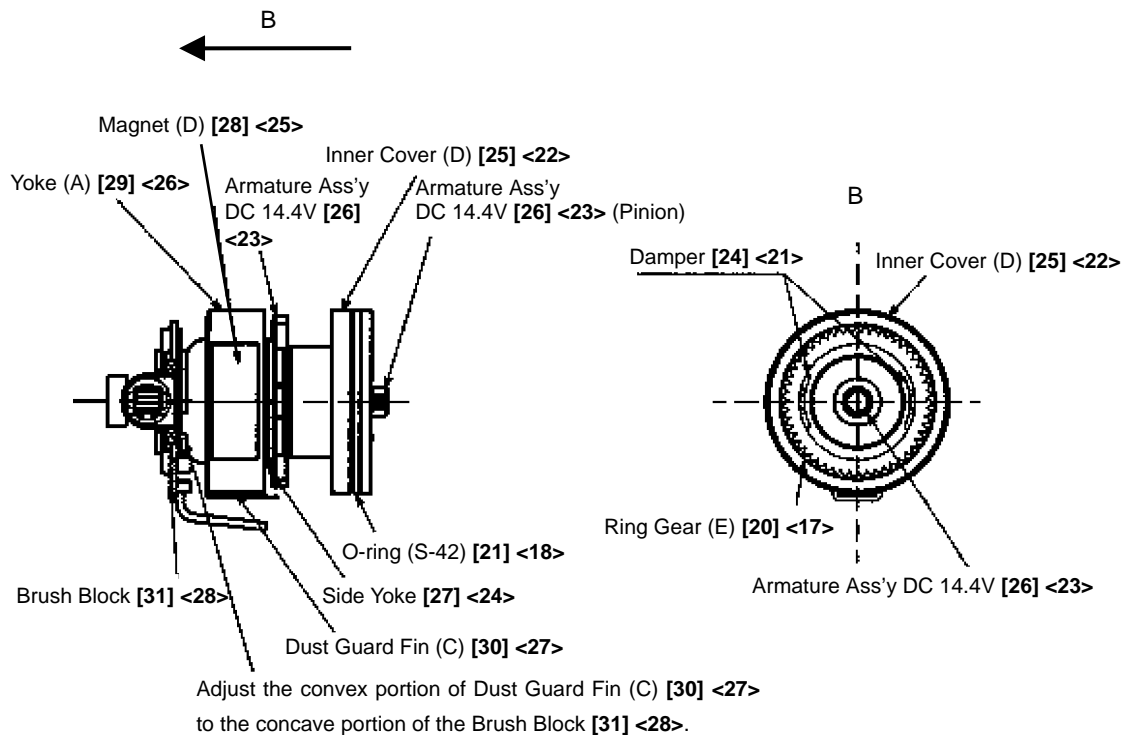
(8) Removal of the switch assembly

Remove the two Machine Screws (W/Sp. Washer) M3 x 5 [37] <34> that secure the flag terminal and then disconnect the internal wires (red and black) of the Brush Block [31] <28> from the DC-Speed Control Switch [45] <42>.

**NOTE: Do not disconnect the three FET internal wires soldered to the DC-Speed Control Switch [45] <42>.**

(9) Removal of Magnet (D) [28] <25>, Yoke (A) [29] <26>, Dust Guard Fin (C) [30] <27> and Side Yoke [27] <24>

Remove Magnet (D) [28] <25> in the "B" direction (see Fig. 9) holding Inner Cover (D) [25] <22> securely because Magnet (D) [28] <25> has a strong magnetism. Dust Guard Fin (C) [30] <27> and Side Yoke [27] <24> can be easily removed from Magnet (D) [28] <25> by holding Magnet (D) [28] <25> securely and pulling them in the direction of diameter because they are mounted to Magnet (D) [28] <25> magnetically. Yoke (A) [29] <26> can be also removed in this way.



**Fig. 9**

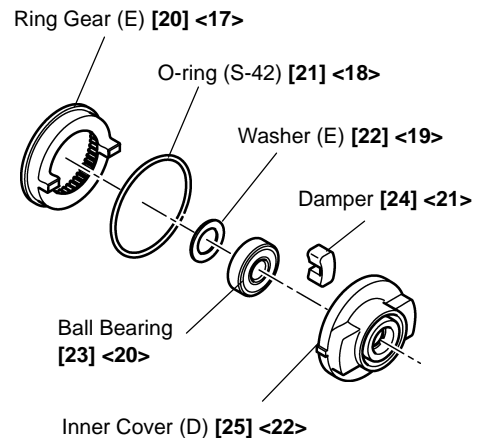


(10) Removal of the Armature Ass'y DC 14.4V [26] <23>

Support Inner Cover (D) [25] <22> so that it does not contact the fan of the Armature Ass'y DC 14.4V [26] <23>. With a hand press, push down the tip portion of the Armature Ass'y DC 14.4V [26] <23> (pinion) to remove it.

(11) Removal of Ring Gear (E) [20] <17> and Damper [24] <21>

Remove Ring Gear (E) [20] <17> and O-ring (S-42) [21] <18> from Inner Cover (D) [25] <22> and remove Damper [24] <21> with a small flat-blade screwdriver. Be careful not to hurt O-ring (S-42) [21] <18> when removing Ring Gear (E) [20] <17> and Inner Cover (D) [25] <22>.



**Fig. 10**

### 10-1-2. Reassembly

Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Reassembly of the switch assembly

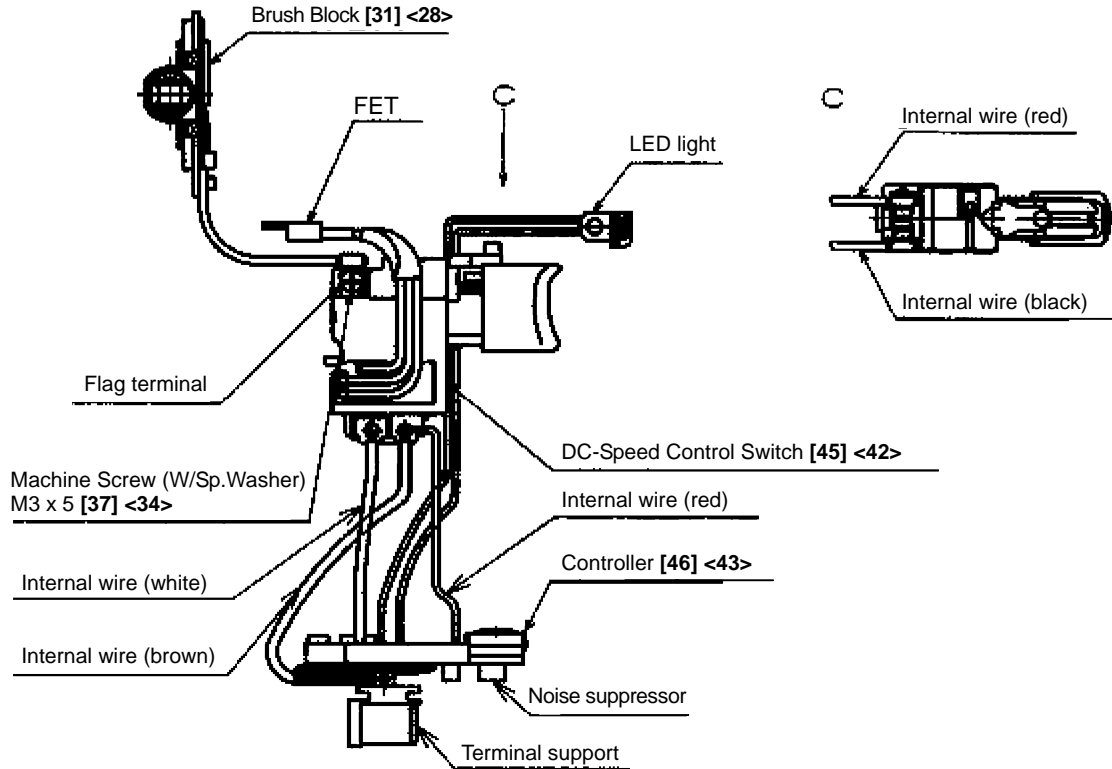
(a) Perform wiring according to the wiring diagram shown in Fig. 11 when replacing the

Controller [46] <43> or the DC-Speed Control Switch [45] <42> singly. Omit this item (a) when replacing the Switch Ass'y [47] <44>.

- Solder the internal wires (red and white) coming from the top of the Controller [46] <43> to the DC-Speed Control Switch [45] <42>. At this time, connect the internal wire (red) to the (+) terminal of the DC-Speed Control Switch [45] <42> and the internal wire (white) to the (-) terminal (Fig. 11 (a)).

- Solder the internal wires (black and white) coming from the bottom of the Controller [46] <43> to the terminal support. At this time, connect the internal wire (black) to the (-) terminal and the internal wire (white) to the LD terminal of the terminal support (Fig. 11 (b)).

Wiring diagram (a)



Wiring diagram (b)

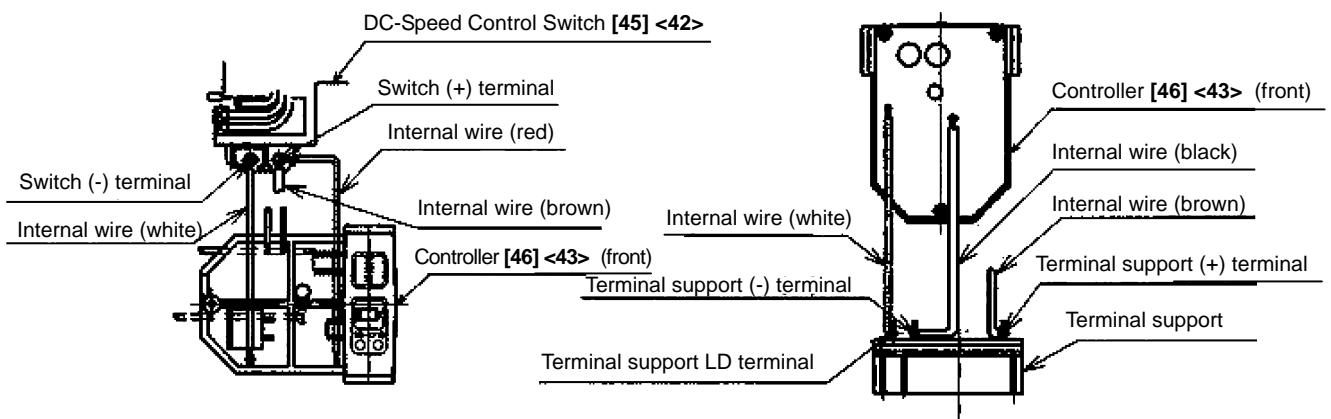
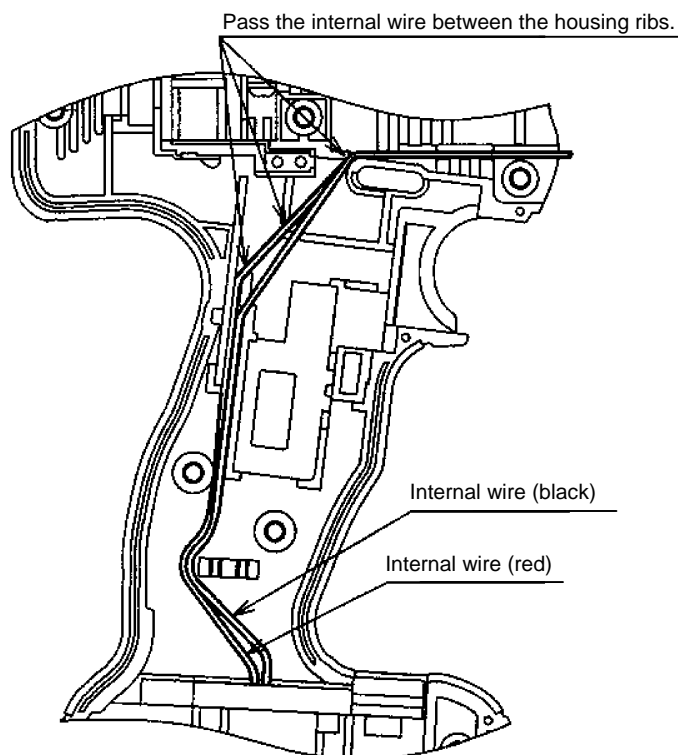


Fig. 11

- (b) When connecting the internal wires of the Brush Block [31] <28> to the DC-Speed Control Switch [45] <42>, fasten them with the Machine Screw (W/Sp. Washer) M3 x 5 [37] <34> paying attention to the direction of the flag terminal (Fig. 11).
- (c) Fit the protrusion of the forward/reverse changeover lever of the DC-Speed Control Switch [45] <42> in the hole of Pushing Button (A) [38] <35> and mount it to housing (A). When mounting the DC-Speed Control Switch [45] <42> to housing (A), check that the rotation switch-over lever is set to "P." Otherwise, the DC-Speed Control Switch [45] <42> cannot be mounted to housing (A).
  - Pass the internal wire connected to the LED light between the housing ribs as shown in Fig. 12.

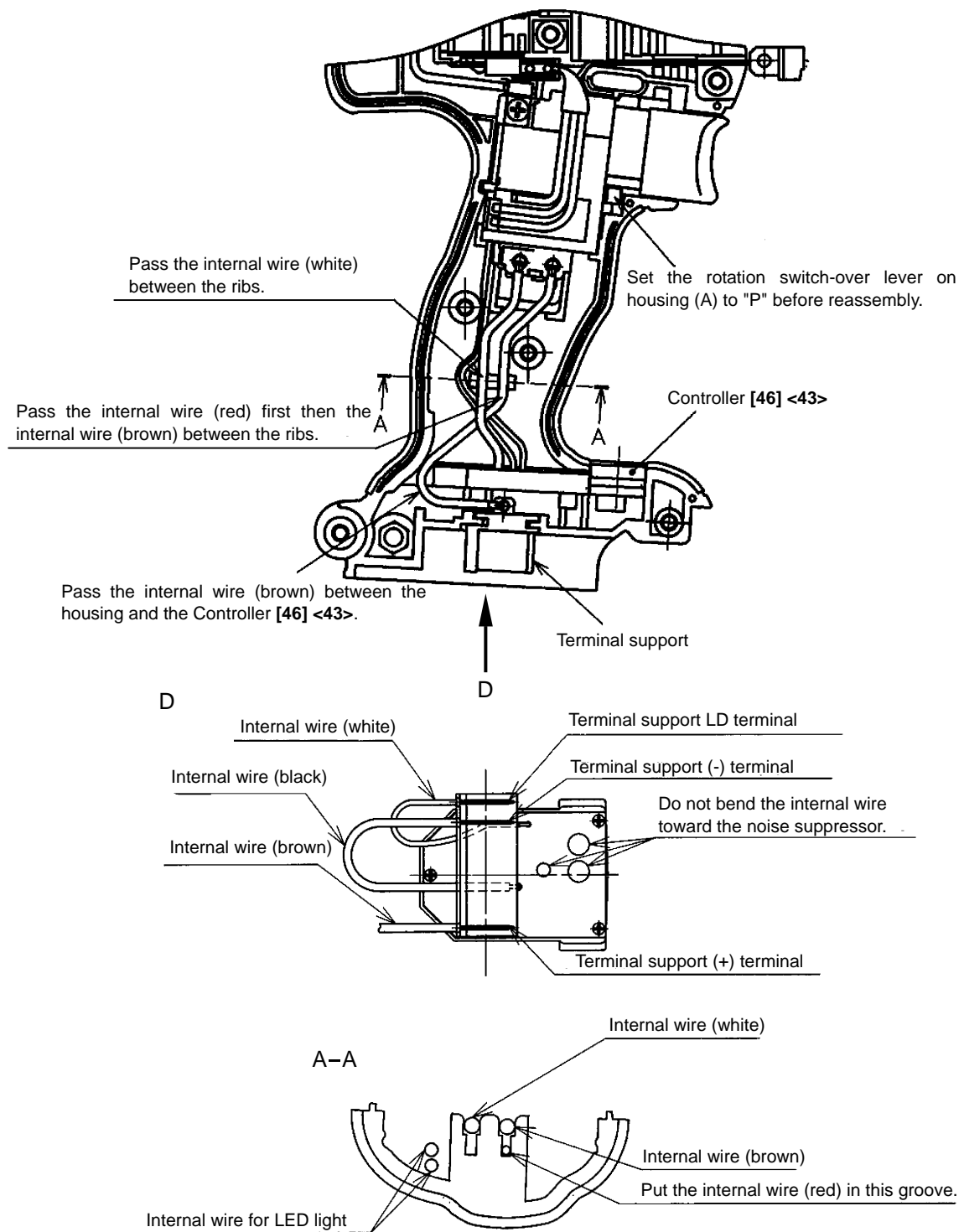


**Fig. 12**

- Pass the internal wires connected to the DC-Speed Control Switch [45] <42> between the ribs as shown in Fig. 13. First, pass the internal wire (white) between the left ribs, then the internal wire (red) between the right inner ribs and the internal wire (brown) between the right ribs.
- Bend the internal wire under the Controller [46] <43> so that it fits in the housing. However, be careful not to break the internal wire when bending. Do not bend the internal wire toward the noise suppressor. If the internal wire contacts the noise suppressor, malfunction may be caused (Fig. 13).

**NOTE:**

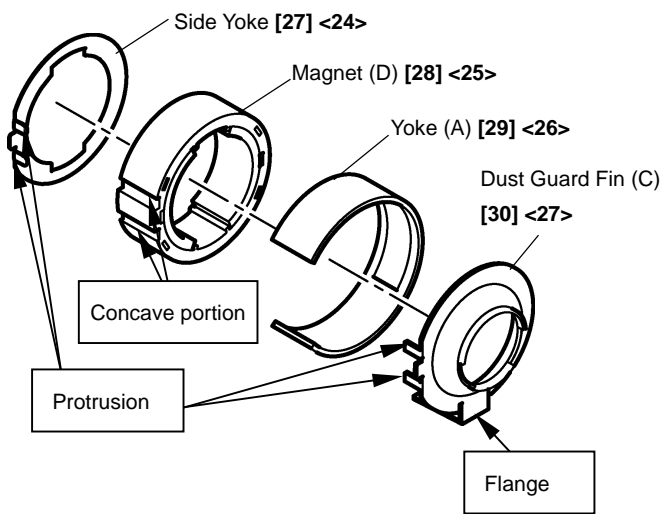
If black oxide is adhered to the contact point between the terminal support and the battery or if the plating is peeled off, the temperature of the contact point may increase, causing malfunction of the battery or the Model WH 14DSL/WR 14DSL. In such case, replace the DC-Speed Control Switch [45] <42> with new one (Code No. 326784) (Fig. 13).



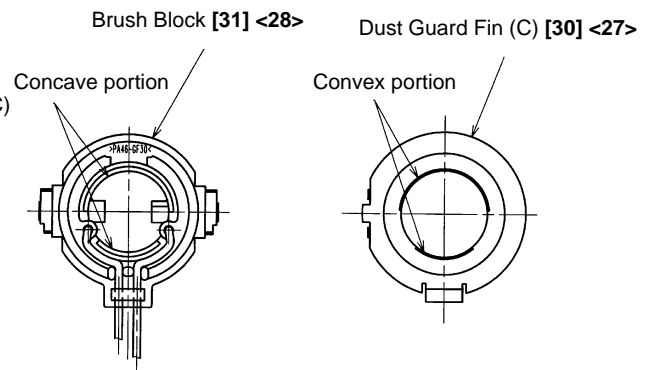
**Fig. 13**

(2) Mounting the mechanical parts

- (a) Put Washer (S) [15] <12> onto the shaft of Spindle (D) [17] <14> and mount Hammer (F) [11] <8> containing the twenty-eight Steel Balls D3.175 [12] <9>, Washer (J) [13] <10> and Hammer Spring (D) [14] <11> to Spindle (D) [17] <14>.
- (b) Align the top of the cam groove on Spindle (D) [17] <14> with the steel ball guide groove on Hammer (F) [11] <8> as illustrated in Fig. 8. Press down either of the raised faces of Hammer (F) [11] <8> with a hand press to compress Hammer Spring (D) [14] <11> until the end surface of Hammer (F) [11] <8> contacts Spindle (D) [17] <14>.
- (c) Insert the two Steel Balls D5.556 [10] <7> into the steel ball guide groove. Check that the steel balls are properly inserted in the cam groove. Then release the hand press.
- (d) Mount the hammer assembly onto the J297 base for washer (S). With a hand press, push down the top of Spindle (D) [17] <14> to compress Hammer Spring (D) [14] <11>. On this condition, mount Stopper [16] <13> onto the spindle shaft and then release the hand press.
- (e) Mounting the Armature Ass'y DC 14.4 V [26] <23>
  - Adjust the protrusions of Dust Guard Fin (C) [30] <27> to the concave portions of Magnet (D) [28] <25> and also adjust the outside diameter of Dust Guard Fin (C) [30] <27> to the outside diameter of Magnet (D) [28] <25> when mounting Dust Guard Fin (C) [30] <27> to Magnet (D) [28] <25> (see Fig. 14).
  - Adjust the protrusions of the Side Yoke [27] <24> to the concave portions of Magnet (D) [28] <25> and also adjust the outside diameter of the Side Yoke [27] <24> to the outside diameter of Magnet (D) [28] <25> when mounting the Side Yoke [27] <24> to Magnet (D) [28] <25> (see Fig. 14).
  - Mount Yoke (A) [29] <26> to Magnet (D) [28] <25> aligning the concave portion of Yoke (A) [29] <26> with the flange of Dust Guard Fin (C) [30] <27>. Be careful of the mounting direction of Yoke (A) [29] <26> (see Fig. 14).
  - Insert the two Dampers [24] <21> so that they fit into Inner Cover (D) [25] <22>. Mount the O-ring (S-42) [21] <18> to Ring Gear (E) [20] <17>. Fit the locking rib of Ring Gear (E) [20] <17> in the concave portion of the Dampers [24] <21>. Press-fit the Armature Ass'y DC 14.4 V [26] <23> into Inner Cover (D) [25] <22>.
  - Mount the above assembly of Magnet (D) [28] <25> to the Armature Ass'y DC 14.4 V [26] <23>.



**Fig. 14**



**Fig. 15**

(f) Mounting the hammer case

Put Anvil (D) [9] or Anvil (B) <6> on Spindle (D) [17] <14>. Cover it with the Hammer Case [7] <3>.

(g) Mounting the hammer assembly to the armature assembly

Push Inner Cover (D) [25] <22> in the Hammer Case [7] <3> being careful of proper engagement between the Idle Gear Set (2 pcs.) [18] <15> of the hammer assembly (check that Washer (E) [22] <19> is mounted on Spindle (D) [17] <14>) and Ring Gear (E) [20] <17>. At this time, adjust the position so that the rib of Inner Cover (D) [25] <22> is perpendicular to the rib of the Hammer Case [7] <3> (see Fig. 16). Mount the above assembly of Inner Cover (D) [25] <22> to the Armature Ass'y DC 14.4 V [26] <23>. After mounting, check that the Armature Ass'y DC 14.4 V [26] <23> turns smoothly. If not, the gears mesh improperly. Check the meshing condition.

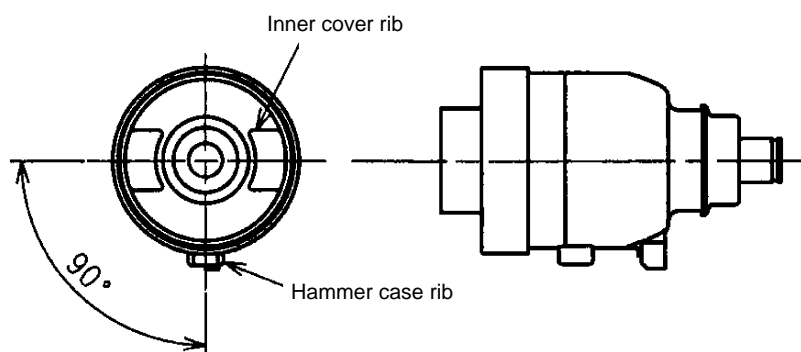


Fig. 16

(3) Reassembly of housing

Mount a unit of the hammer assembly, Hammer Case [7] <3>, Inner Cover (D) [25] <22> (including the Armature Ass'y DC 14.4 V [26] <23>), Magnet (D) [28] <25> (including Yoke (A) [29] <26>, Dust Guard Fin (C) [30] <27> and Side Yoke [27] <24>) and Brush Block [31] <28> into housing (A) (see Fig. 21).

(a) Apply silicone rubber (THREEBOND 1211) to the diagonally shaded areas in Fig. 17 before mounting the parts to housing (A).

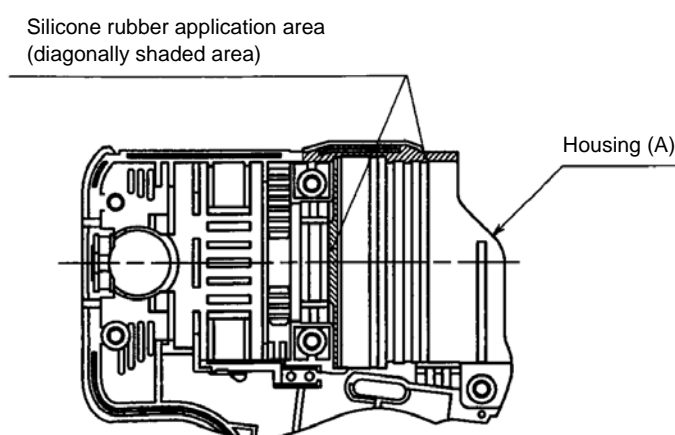


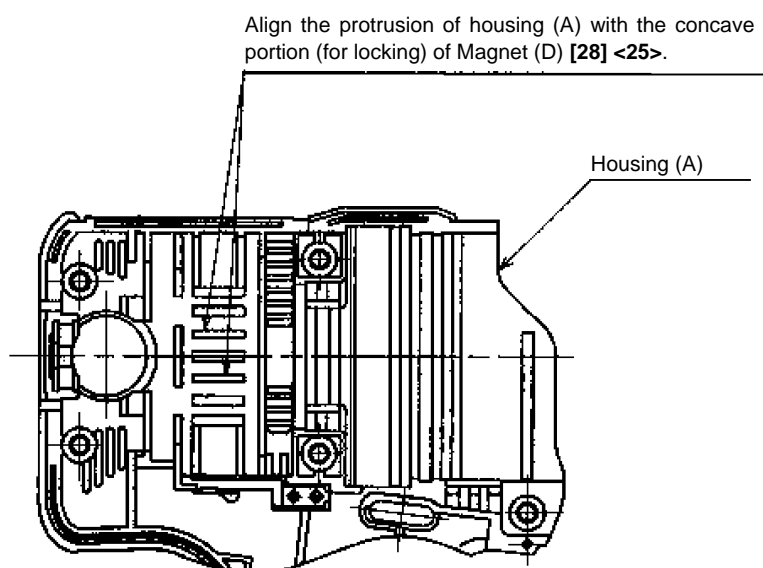
Fig. 17

Pay attention to the following items in reassembly.

- Adjust the convex portion of Dust Guard Fin (C) [30] <27> to the concave portion of the Brush Block [31] <28> (see Fig. 15).
- Adjust the concave portions (for locking) of Magnet (D) [28] <25> to the protrusions of housing (A) (see Figs. 14 and 18).
- Mount the Hammer Case [7] <3> to the housing so that the protrusion (for locking) of the Hammer Case [7] <3> contacts the support hole of the housing as shown in Fig. 20. At this time, pass the internal wire of the LED light between the housing and the Hammer Case [7] <3> as shown in Fig. 19.
- Check that the Hammer Case [7] <3> is mounted to the housing properly. If the Hammer Case [7] <3> is not fitted in the specified groove of the housing or the rib of Inner Cover (D) [25] <22> is not perpendicular to the rib of the Hammer Case [7] <3>, remount the Hammer Case [7] <3> properly (see Figs. 16, 19 and 20). Be sure to mount the Hammer Case [7] <3> to the housing properly to prevent slipping off in the axial direction.
- Apply silicone grease (KS609, Shin-Etsu Chemical Co., Ltd.) to the contacting surfaces of the FET of the DC-Speed Control Switch [45] <42> and Dust Guard Fin (C) [30] <27> then mount them to housing (A).

**NOTE:**

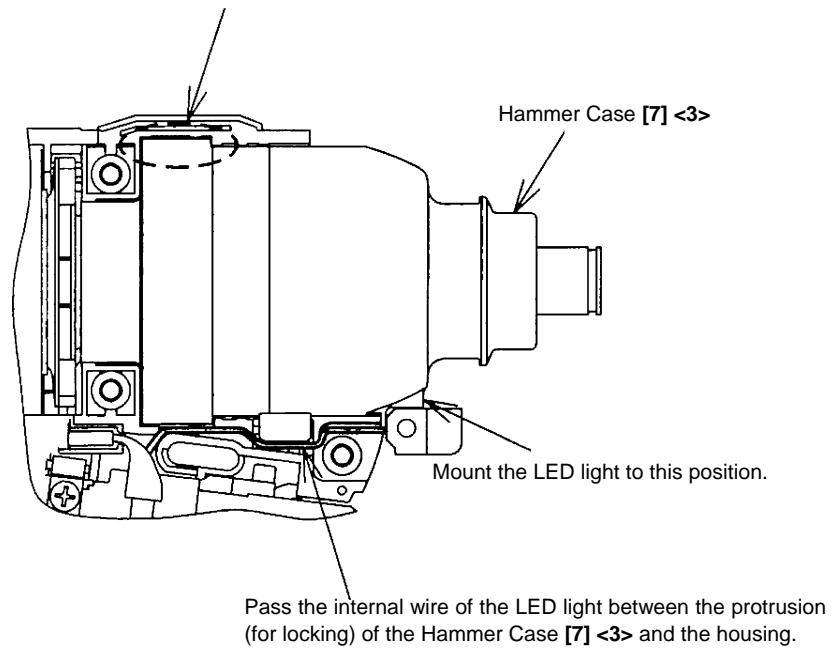
The temperature of the FET may be high if the silicone grease is not applied. Bend the three internal wires coming from the FET as shown in Fig. 21 so that they do not contact Pushing Button (A) [38] <35> and also they are passed above the DC-Speed Control Switch [45] <42>.



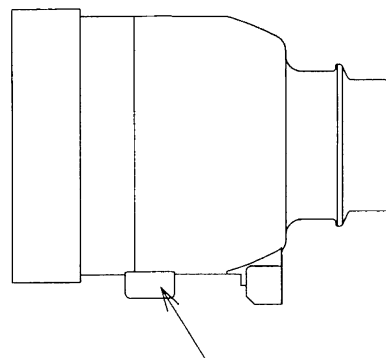
**Fig. 18**



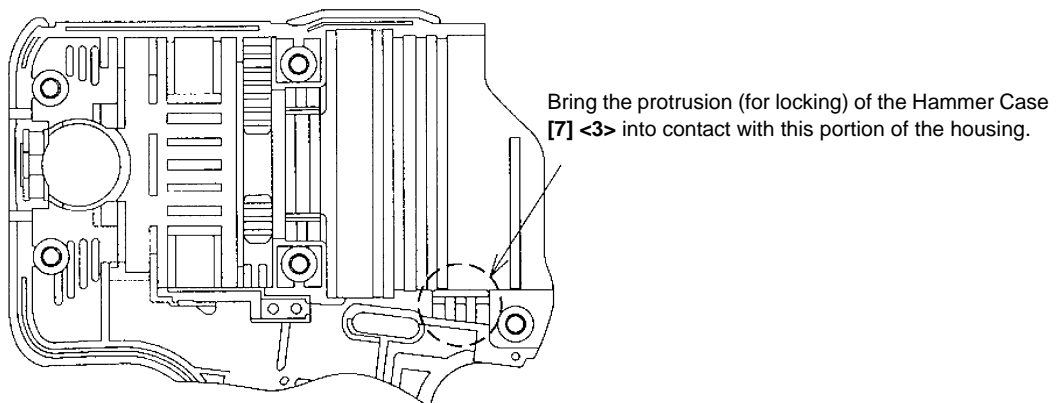
Be sure to mount the Hammer Case [7] <3> to housing (A) securely.



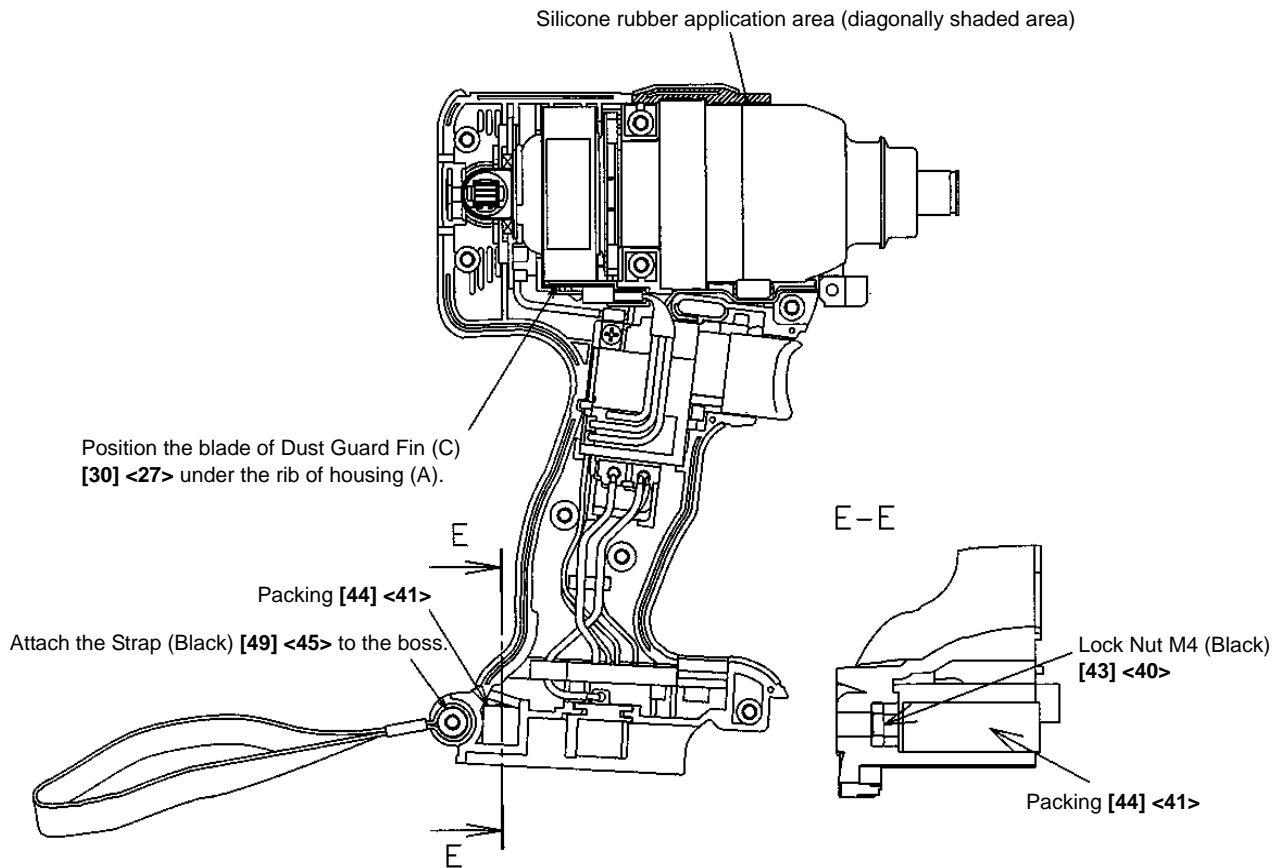
**Fig. 19**



Protrusion (for locking) of the Hammer Case [7] <3>



**Fig. 20**



**Fig. 21**

**(4) Reassembly of the housing**

Apply silicone rubber (THREEBOND 1211) to housing (A) as shown in Fig. 17. Attach the Strap (Black) [49] <45> to the boss as shown in Fig. 21. Also apply silicone rubber (THREEBOND 1211) to housing (B) at the same position as housing (A) in Fig. 17. Mount the Lock Nut M4 (Black) [43] <40> and the Packing [44] <41> to housings (A) and (B) as shown in Fig. 21. Then secure housing (B) with the nine Tapping Screws (W/Flange) D4 x 20 (Black) [34] <31>. Wipe off silicone rubber protruded from the housing with a cloth.

**(5) Mounting Protector (J) [6] <2> and Front Cap (F) [5] <1>**

Cover the assembled housing with Protector (J) [6] <2> and Front Cap (F) [5] <1>. Check that the board in the LED light does not protrude from the LED holder. Then engage the protrusion of the Hammer Case [7] <3> with the protrusion of the LED holder. Check that the LED light is inside the rib of Protector (J) [6] <2> before mounting Protector (J) [6] <2> (see Fig. 22). After mounting Protector (J) [6] <2>, mount Front Cap (F) [5] <1> to secure Protector (J) [6] <2>.

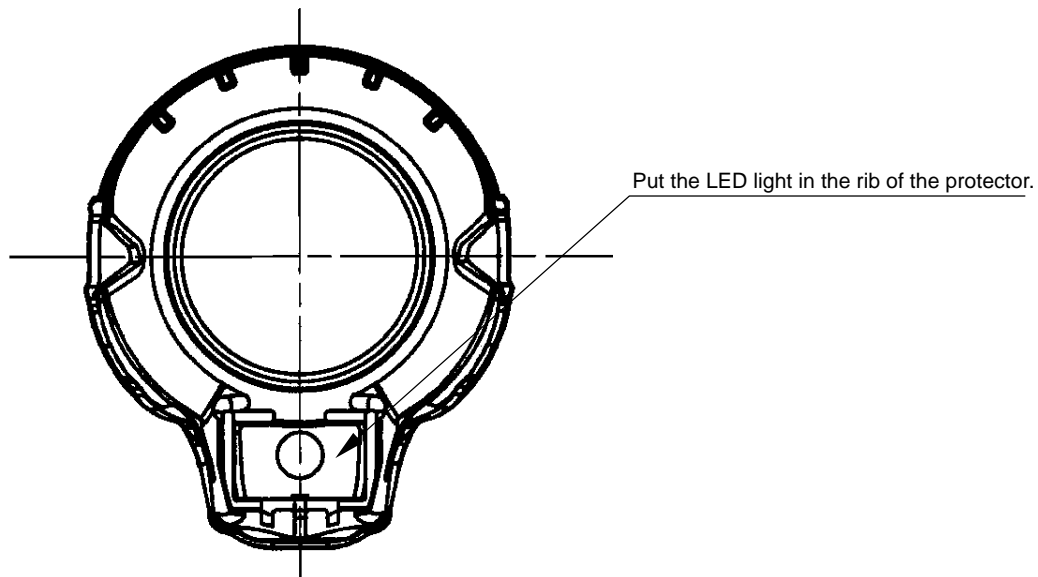


Fig. 22

(6) Mounting Guide Sleeve (D) [4] (Model WH 14DSL only)

Insert the two Steel Balls D3.5 [8] into the hole of Anvil (D) [9]. Mount Guide Sleeve (D) [4], Guide Spring (D) [3] and Washer (D) [2] in sequence. Mount the Retaining Ring [1] into the groove of the anvil using J-295 jigs (A) and (B) for retaining ring (see Fig. 23).

**NOTE:**

**Be sure to replace the Retaining Ring [1] with new one because the Retaining Ring [1] may be deformed and Guide Sleeve (D) [4] may come off if the deformed retaining ring is used again.**

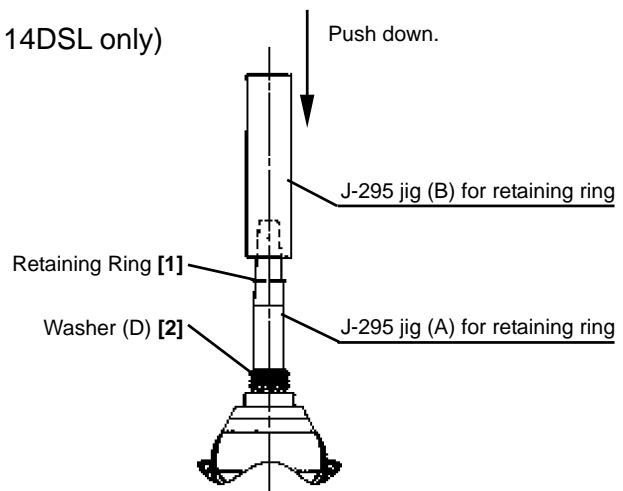


Fig. 23

(7) Mounting Hook (A) [41] <38>

Insert Hook (A) [41] <38> into the groove under the side of housings (A) and (B) and secure with the M4 Truss Hd. Screw (Black) [42] <39>. At this time, do not turn the M4 Truss Hd. Screw (Black) [42] <39> quickly. Otherwise, the Lock Nut M4 (Black) [43] <40> may slip off the housing. Be sure to tighten the M4 Truss Hd. Screw (Black) [42] <39> slowly so that the Lock Nut M4 (Black) [43] <40> can be tightened together. Hook (A) [41] <38> is attachable on either side of the main body.

(8) Checking for lighting of the LED light and the remaining battery indicator lamp

Press the light switch on the Controller [46] <43> and check whether the LED light lights or not. The LED light goes off by pressing the light switch again. Next, press the remaining battery indicator switch and check whether both the remaining battery indicator lamps light or not. Use a fully charged battery pack for checking. Keep pressing the remaining battery indicator switch during checking. The remaining battery indicator lamps go off by releasing your finger from the remaining battery indicator switch.

(9) Checking the direction of rotation

Check whether the direction of rotation of Anvil (D) [9] or Anvil (B) <6> coincides with the directional markings on the push-on side of Pushing Button (A) [38] <35>. When Pushing Button (A) [38] <35> is turned to (R) side, the direction of rotation of Anvil (D) [9] or Anvil (B) <6> should be clockwise as viewed from behind.

(10) Lubrication

(a) ATTOLUB MS No. 2

- Pinion tooth flanks of the Armature Ass'y DC 14.4 V [26] <23> and the tooth flanks of Ring Gear (E) [20] <17> and the Idle Gear Set (2 pcs.) [18]
- Twenty-eight Steel Balls D3.175 [12] <9>

(b) HITACHI MOTOR GREASE No. 29

- Two Steel Balls D3.5 [8] (Model WH 14DSL only)
- Sliding section between Anvil (D) [9] and Guide Sleeve (D) [4] (Model WH 14DSL only)
- Sliding section between housing (A) assembly and Lever (C) [36] <33>

(c) MOLUB-ALLOY 777-1

- 8 mm diameter hole of Anvil (D) [9] or Anvil (B) <6>, sliding section between Anvil (D) [9] or Anvil (B) <6> and the metal, and upper surface of the claw
- Two Steel Balls D5.556 [10] <7>
- Metal oil groove of the Hammer Case [7] <3>
- Cam groove, oil groove and claw of Hammer (F) [11] <8>
- Cam groove and sliding section of Spindle (D) [17] <14>
- 5 mm diameter hole of Idle Gear Set (2 pcs.) [18] <15>
- All around the Needle Roller [19] <16>

(11) Screw tightening torque

- Tapping Screw (W/Flange) D4 x 20 (Black) [34]<31>  
-----  $1.96 \pm 0.49 \text{ N}\cdot\text{m}$  { $20 \pm 5 \text{ kgf}\cdot\text{cm}$ ,  $17.4 \pm 4.3 \text{ in}\cdot\text{lbs.}$ }
- Machine Screw (W/Sp. Washer) M3 x 5 [37]<34>  
-----  $0.29 \text{ to } 0.39 \text{ N}\cdot\text{m}$  { $3 \text{ to } 4 \text{ kgf}\cdot\text{cm}$ ,  $2.6 \text{ to } 3.5 \text{ in}\cdot\text{lbs.}$ }
- Brush Cap [33]<30>  
-----  $0.78 \pm 0.10 \text{ N}\cdot\text{m}$  { $8 \pm 1 \text{ kgf}\cdot\text{cm}$ ,  $6.9 \pm 0.9 \text{ in}\cdot\text{lbs.}$ }
- M4 Truss Hd. Screw (Black) [42]<39>  
-----  $1.8 \pm 0.40 \text{ N}\cdot\text{m}$  { $18 \pm 4 \text{ kgf}\cdot\text{cm}$ ,  $15.9 \pm 3.5 \text{ in}\cdot\text{lbs.}$ }

## 10-2. Precautions in Disassembly and Reassembly of Battery Charger

Refer to the Technical Data and Service Manual for precautions in disassembly and reassembly of the Model UC 18YRSL battery charger.

## 11. STANDARD REPAIR TIME (UNIT) SCHEDULES

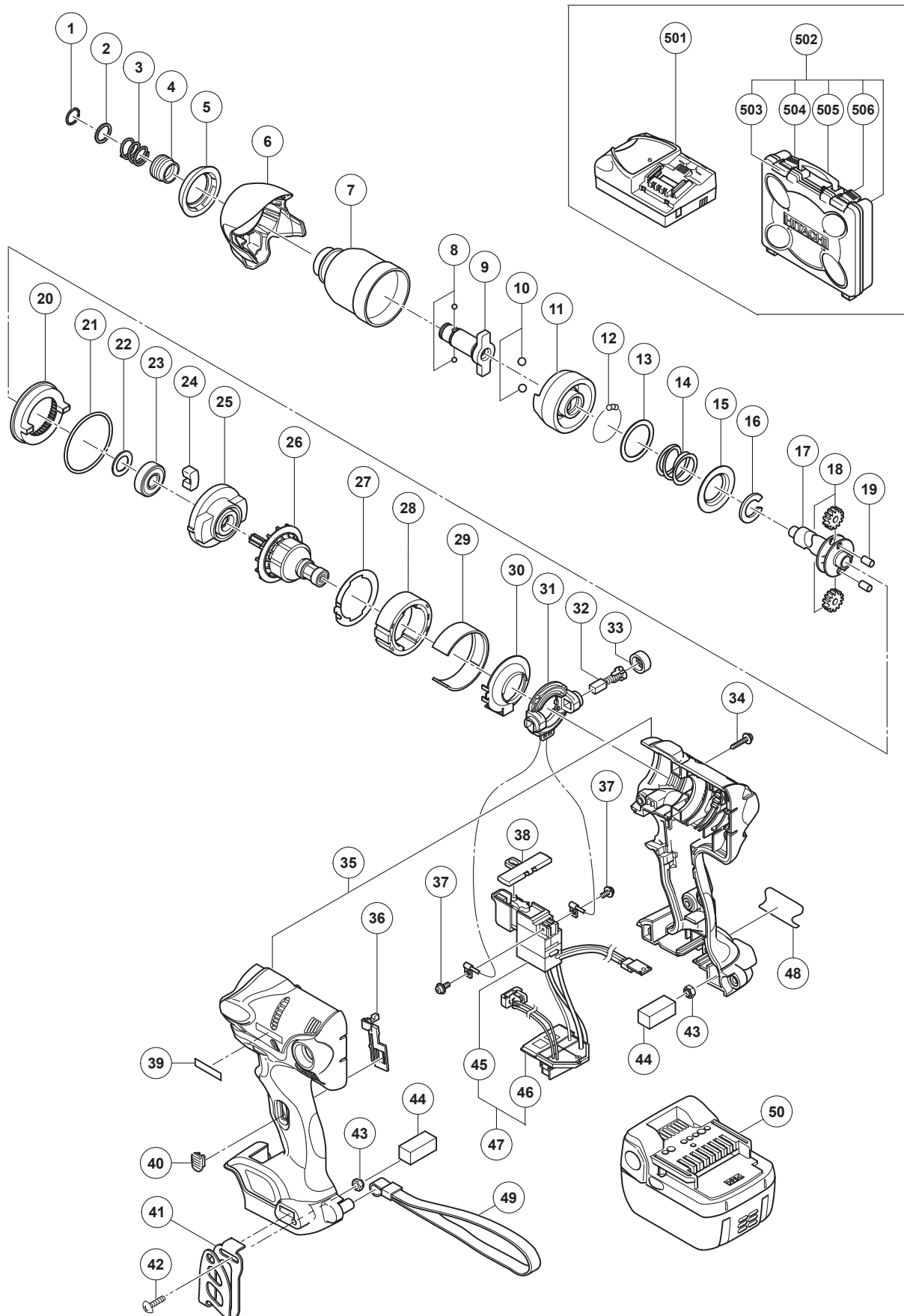
MODEL	Variable Fixed	10	20	30	40	50	60 min.
WH 14DSL							
		Work Flow					
		Hook (A)	Switch Ass'y				
				Housing (A).(B) Set			
	General Assembly		Inner Cover (D) Armature Ass'y Magnet (D) Brush Block				
		Guide Spring (D) Guide Sleeve (D)	Hammer Case Anvil (C) Ring Gear (E)	Hammer (F) Steel Ball Hammer Spring (D) Spindle (D) Idle Gear Set Needle Roller Ball Bearing (6901VV)			

MODEL	Variable Fixed	10	20	30	40	50	60 min.
WR 14DSL							
		Work Flow					
		Hook (A)	Switch Ass'y				
				Housing (A).(B) Set			
			Inner Cover (D)				
			Armature Ass'y				
			Magnet (D)				
			Brush Block				
	General Assembly		Hammer Case	Hammer (F)			
			Anvil (C)	Steel Ball			
			Ring Gear (E)	Hammer Spring (D)			
				Spindle (D)			
				Idle Gear Set			
				Needle			
				Roller			
				Ball Bearing (6901VV)			

## ELECTRIC TOOL PARTS LIST

### ■ CORDLESS IMPACT DRIVER Model WH 14DSL

2008・2・6  
(E1)



# PARTS

WH 14DSL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	315-984	RETAINING RING	1		
2	315-983	WASHER (D)	1		
3	321-657	GUIDE SPRING (D)	1		
4	322-717	GUIDE SLEEVE (D)	1		
5	327-766	FRONT CAP (F)	1		
6	327-765	PROTECTOR (J)	1		
7	327-003	HAMMER CASE	1		
8	319-535	STEEL BALL D3.5 (10 PCS.)	2		
9	329-709	ANVIL (D)	1		
10	959-154	STEEL BALL D5.556 (10 PCS.)	2		
11	326-789	HAMMER (F)	1		
12	959-148	STEEL BALL D3.175 (10 PCS.)	28		
13	315-978	WASHER (J)	1		
14	321-660	HAMMER SPRING (D)	1		
15	316-172	WASHER (S)	1		
16	316-171	STOPPER	1		
17	321-666	SPINDLE (D)	1		
18	321-667	IDLE GEAR SET (2 PCS.)	2		
19	319-914	NEEDLE ROLLER	2		
20	326-787	RING GEAR (E)	1		
21	983-852	O-RING (S-42)	1		
22	319-911	WASHER (E)	1		
23	323-118	BALL BEARING 6901VV-N	1		
24	319-909	DAMPER	2		
25	326-786	INNER COVER (D)	1		
26	360-752	ARMATURE ASS'Y DC 14.4V	1		
27	323-327	SIDE YOKE	1		
28	322-744	MAGNET (D)	1		
29	324-828	YOKE (A)	1		
30	324-830	DUST GUARD FIN (C)	1		
31	321-662	BRUSH BLOCK	1		
32	999-054	CARBON BRUSH 5X6X11.5 (1 PAIR)	2		
33	319-918	BRUSH CAP	2		
34	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	9		
* 35	329-710	HOUSING (A). (B) SET (GREEN)	1		
* 35	329-827	HOUSING (A). (B) SET (WHITE)	1		
* 35	326-795	HOUSING (A). (B) SET (RED)	1		
* 35	329-828	HOUSING (A). (B) SET (BLUE)	1		
36	326-782	LEVER (C)	1		
37	994-532	MACHINE SCREW (W/SP. WASHER) M3X5	2		
38	321-661	PUSHING BUTTON (A)	1		
39		HITACHI LABEL	1		
40	326-783	LEVER (B)	1		
41	326-790	HOOK (A)	1		
42	327-001	M4 TRUSS HD. SCREW (BLACK)	1		
43	327-002	LOCK NUT M4 (BLACK)	2		
44	327-004	PACKING	2		
45	326-784	DC-SPEED CONTROL SWITCH	1		
46	329-708	CONTROLLER	1		
47	329-707	SWITCH ASS'Y	1	INCLUD. 45, 46	



**WH 14DSL**

## STANDARD ACCESSORIES

- 3 -

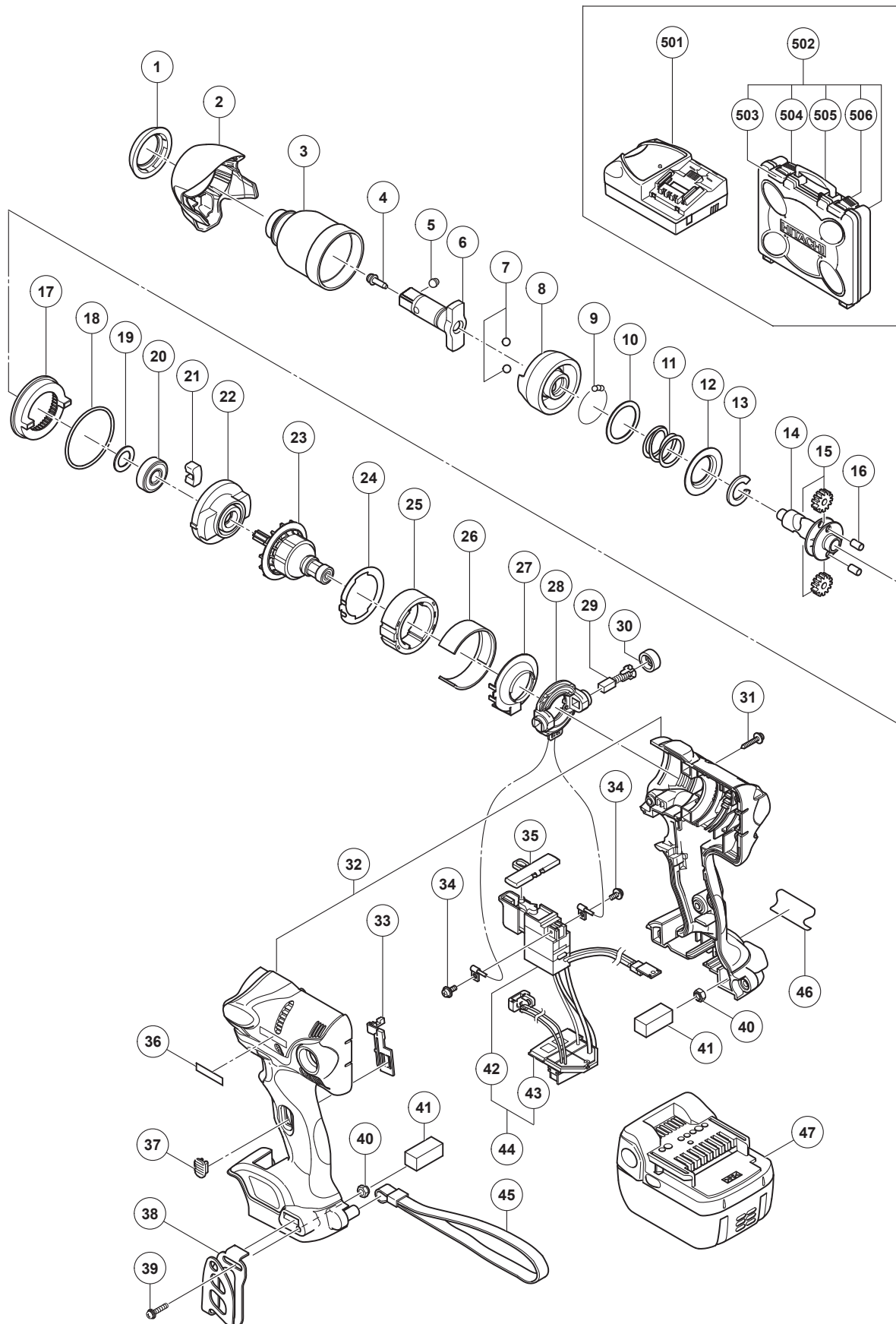
**WH 14DSL**

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## ELECTRIC TOOL PARTS LIST

### CORDLESS IMPACT WRENCH Model WR 14DSL

2008・2・6  
(E1)



# PARTS

WR 14DSL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	327-766	FRONT CAP (F)	1		
2	327-765	PROTECTOR (J)	1		
3	328-041	HAMMER CASE	1		
4	323-542	PIN RETAINER (A)	1		
5	323-541	PLUNGER (A)	1		
6	329-718	ANVIL (B)	1	INCLUD. 4, 5	
7	959-154	STEEL BALL D5.556 (10 PCS.)	2		
8	326-789	HAMMER (F)	1		
9	959-148	STEEL BALL D3.175 (10 PCS.)	28		
10	315-978	WASHER (J)	1		
11	321-660	HAMMER SPRING (D)	1		
12	316-172	WASHER (S)	1		
13	316-171	STOPPER	1		
14	321-666	SPINDLE (D)	1		
15	321-667	IDLE GEAR SET (2 PCS.)	2		
16	319-914	NEEDLE ROLLER	2		
17	326-787	RING GEAR (E)	1		
18	983-852	O-RING (S-42)	1		
19	319-911	WASHER (E)	1		
20	323-118	BALL BEARING 6901VV-N	1		
21	319-909	DAMPER	2		
22	326-786	INNER COVER (D)	1		
23	360-752	ARMATURE ASS'Y DC 14.4V	1		
24	323-327	SIDE YOKE	1		
25	322-744	MAGNET (D)	1		
26	324-828	YOKE (A)	1		
27	324-830	DUST GUARD FIN (C)	1		
28	321-662	BRUSH BLOCK	1		
29	999-054	CARBON BRUSH 5X6X11.5 (1 PAIR)	2		
30	319-918	BRUSH CAP	2		
31	301-653	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	9		
32	329-710	HOUSING (A). (B) SET (GREEN)	1		
32	329-827	HOUSING (A). (B) SET (WHITE)	1		
32	326-795	HOUSING (A). (B) SET (RED)	1		
32	329-828	HOUSING (A). (B) SET (BLUE)	1		
33	326-782	LEVER (C)	1		
34	994-532	MACHINE SCREW (W/SP. WASHER) M3X5	2		
35	321-661	PUSHING BUTTON (A)	1		
36		HITACHI LABEL	1		
37	326-783	LEVER (B)	1		
38	326-790	HOOK (A)	1		
39	327-001	M4 TRUSS HD. SCREW (BLACK)	1		
40	327-002	LOCK NUT M4 (BLACK)	2		
41	327-004	PACKING	2		
42	326-784	DC-SPEED CONTROL SWITCH	1		
43	329-708	CONTROLLER	1		
44	329-707	SWITCH ASS'Y	1	INCLUD. 42, 43	
45	306-952	STRAP (BLACK)	1		
46		NAME PLATE	1		
47	329-083	BATTERY BSL 1430 (EUROPE)	2		

## WR 14DSL

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# OPTIONAL ACCESSORIES

WR 14DSL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601		CORNER ATTACHMENT ASS'Y EW-14R	1	INCLUD. 602-618	
602	955-300	HOUSING	1		
603	955-301	METAL	3		
604	955-302	SPINDLE	1		
605		HITACHI LABEL	1		
606	955-303	BEARING RACE	2		
607	955-304	NEEDLE THRUST BEARING (NTA-1413)	2		
608	955-305	COVER	1		
609	955-306	NEEDLE BEARING (NTN BK1012)	1		
610	948-227	RETAINING RING FOR D47 HOLE	1		
611	955-307	PINION	1		
612	955-308	SLEEVE	1		
613	955-309	WASHER	1		
614	955-310	SOCKET COVER	1		
615	955-311	SOCKET	1		
616	303-247	SEAL LOCK HEX. SOCKET HD. BOLT M5X25	6		
617	873-537	SOCKET PIN	1		
618	873-187	O-RING (J1SW1516)	1		
619	991-481	FORM TIE SOCKET ASS'Y 11.3MMX95L	1	INCLUD. 617, 618	
620	992-610	UNIVERSAL JOINT ASS'Y	1	INCLUD. 617, 618	
621	955-153	UNIVERSAL JOINT PIN	1		
622	991-476	BIT ADAPTER ASS'Y	1	INCLUD. 617, 618	
623	991-480	HEX. SOCKET ASS'Y (LONG) 21MMX125L	1	INCLUD. 617, 618	
624	944-291	HEX. SOCKET ASS'Y 10MMX40L	1	INCLUD. 617, 618	
625	873-632	HEX. SOCKET ASS'Y 12MMX40L	1	INCLUD. 617, 618	
626	873-539	HEX. SOCKET ASS'Y 13MMX40L	1	INCLUD. 617, 618	
627	873-540	HEX. SOCKET ASS'Y 14MMX40L	1	INCLUD. 617, 618	
628	873-536	HEX. SOCKET ASS'Y 17MMX32L	1	INCLUD. 617, 618	
629	873-624	HEX. SOCKET ASS'Y 19MMX34L	1	INCLUD. 617, 618	
630	873-626	HEX. SOCKET ASS'Y 21MMX36L	1	INCLUD. 617, 618	
631	873-627	HEX. SOCKET ASS'Y 22MMX40L	1	INCLUD. 617, 618	
632	986-058	HEX. SOCKET FOR PLASTIC CONE 12MMX70L	1	INCLUD. 617, 618	
633	873-633	EXTENSION BAR ASS'Y (SQUARE) 12.7MMX100L	1	INCLUD. 617, 618	
634	955-151	HEX. SOCKET ASS'Y (LONG) 21MMX75L	1	INCLUD. 617, 618	
635	955-138	HEX. SOCKET ASS'Y (LONG) 12MMX52L	1	INCLUD. 617, 618	
636	955-139	HEX. SOCKET ASS'Y (LONG) 13MMX52L	1	INCLUD. 617, 618	
637	955-140	HEX. SOCKET ASS'Y (LONG) 14MMX52L	1	INCLUD. 617, 618	
638	955-141	HEX. SOCKET ASS'Y (LONG) 17MMX52L	1	INCLUD. 617, 618	
639	955-142	HEX. SOCKET ASS'Y (LONG) 19MMX52L	1	INCLUD. 617, 618	
640	955-149	HEX. SOCKET ASS'Y (LONG) 17MMX75L	1	INCLUD. 617, 618	
641	955-150	HEX. SOCKET ASS'Y (LONG) 19MMX75L	1	INCLUD. 617, 618	
642	955-143	HEX. SOCKET ASS'Y (LONG) 21MMX52L	1	INCLUD. 617, 618	
643	955-144	HEX. SOCKET ASS'Y (LONG) 22MMX52L	1	INCLUD. 617, 618	
644	992-613	SOCKET ASS'Y FOR DUCT 13MMX95L	1	INCLUD. 617, 618, 645	
645	992-614	SOCKET FOR DUCT 13MMX52L	1		
646	992-615	SOCKET ASS'Y FOR DUCT 14MMX95L	1	INCLUD. 617, 618, 647	
647	992-616	SOCKET FOR DUCT 14MMX52L	1		
648	993-658	SOCKET ASS'Y FOR DUCT 12MMX95L	1	INCLUD. 617, 618, 649	
649	993-659	SOCKET FOR DUCT 12MMX52L	1		
650	309-922	GREASE FOR IMPACT DRIVER (500G)	1		